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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

Foreclosure Costs
HORACE RUSSELL

Cost of Distribution of Electricity
BARCLAY J. SICKLER

Country Planning
FRANK A. WAUGH

Regulation vs. Undistributed Profits Tax
HERBERT D. SIMPSON

New York Taxation and Assessment
JOHN E. BURTON and DOROTHY C. BURTON

Railroad Depreciation Accounting
HAROLD D. KOONTZ

Rate Reductions and Recovery
EDWIN VENNARD

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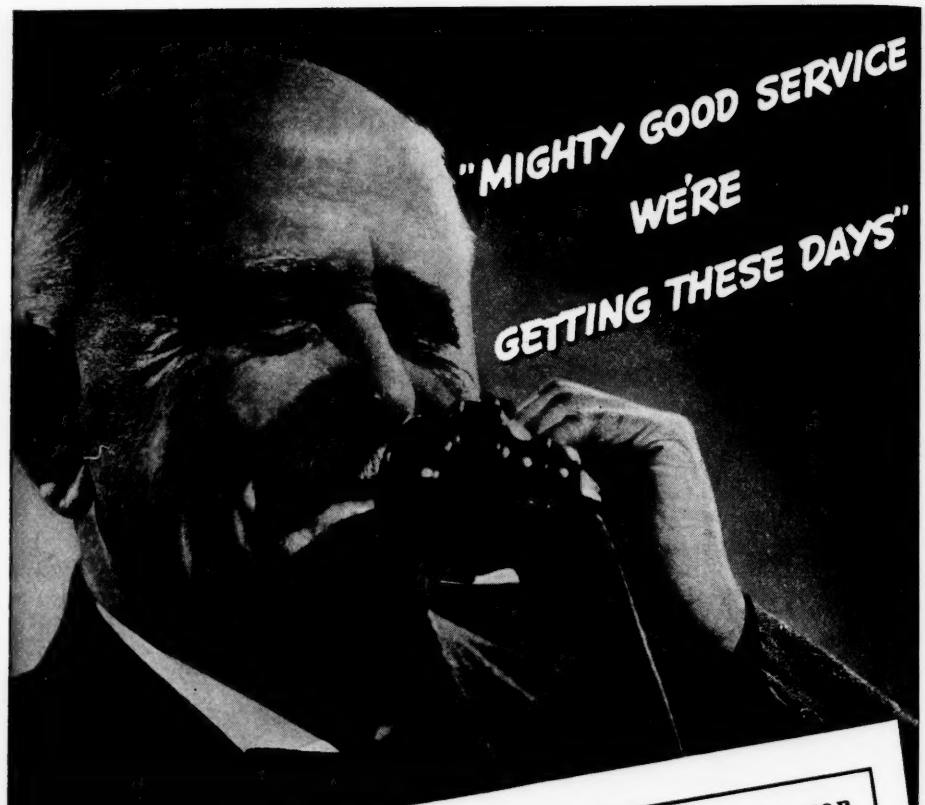

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Foreclosure Costs in New York

By HORACE RUSSELL*

WHEN mortgage institutions engage in home financing or in other lending operations it is unfortunate that defaults and foreclosures must be expected, but such is an inescapable fact.

It is a desideratum that the mortgagor be properly protected in the event of foreclosure. Despite impressions in some quarters to the contrary, mortgage institutions are usually generous not only in their treatment of defaulting mortgagors but also in their willingness to give the mortgagor adequate legal protection from harshness and unfair dealing.

In a study of foreclosures in New York it must therefore be borne in mind, first, that a proper procedure can and must provide full and adequate protection of the mortgagor against any harsh or unjust procedure and, second, that sound and economical home financing requires and demands a procedure which not only protects the individuals in distress confronted with foreclosure but also encourages promotion of home ownership by encouraging liberal lending policies.

The present procedure for foreclosure of real estate mortgages in New York is sadly in need of change, for it is exceedingly backward as compared with that of most of the other states. The average cost of foreclosure in the metropolitan counties is in the neighborhood of $400, and the average length of time required for completion of foreclosure is approximately five months. Outside the metropolitan counties the costs are not quite so high, but even so the burden is approximately twice as heavy as in many other states.

While the data presented here are only those for certain New York counties, they have significance for other states as well, and also for their bearing on the larger subject of the costs of home ownership. Corresponding data for other areas, which are now being gathered by the Home Owners' Loan Corporation, will differ in detail but they will provide further evidence of the need for extensive revision of foreclosure

* General Counsel, Federal Home Loan Bank Board, Washington, D. C.

practice in the interest of quicker and cheaper reorganization of defaulted properties. More facts of the sort presented here will provide a basis for remedial legislation in this branch of the home financing field. Improvement of the foreclosure process will help to reduce interest costs of home ownership and remove some of the obstacles which now hamper liberal extension of mortgage credit.

As an illustration of the excessive costs and delays incident to foreclosure in New York, detailed statements taken from the records of the HOLC, showing the actual payments and the time required for completion of foreclosure in representative cases in four of the metropolitan counties, are presented herewith in Tables I, II, III, and IV. Comparison with the experience of other mortgage institutions has shown that, while an occasional institution has been successful in conducting foreclosures with a slightly lower outlay, others have frequently experienced substantially higher costs. An individual or a small institution not having a great volume of foreclosures must pay a much higher price.

Under the present system it is obvious that the borrower in distress is not protected, for thousands of foreclosures against individual home owners and farm owners have occurred during the recent depression. Clearly, the mortgagee is not protected, for the delays and excessive costs are obviously detrimental to him. Furthermore, aside from certain emergency legislation limiting deficiency claims to the difference between the amount of the debt and

TABLE I. FORECLOSURE COSTS, BRONX COUNTY, NEW YORK*

Property	Advertising	Referee to Compute	Referee to Sell	Auctioneer	Attorney's Fee	Miscellaneous	Total	Disptached to Foreclosure Attorney	Date of Acquisition	Time to Complete (Mos.)
A	$131.60	$25	$75	$30	$125	$113.40	$500.00	July, 1936	Jan. 30, 1937	6
B	146.01	25	75	30	125	42.10	443.11	June, 1936	Dec. 30, 1936	6
C	109.40	25	75	30	125	48.05	412.45	Aug., 1936	Jan. 11, 1937	5½
D	131.72	25	75	30	125	105.90	492.62	Apr. 13, 1936	Feb. 5, 1937	10
E	159.92	25	75	30	125	40.60	455.52	Sept., 1936	Jan. 27, 1937	5
F	135.26	25	75	30	125	45.10	435.36	Sept., 1936	Dec. 29, 1936	4
G	102.38	25	75	20	125	42.65	390.03	Aug. 27, 1936	Jan. 22, 1937	5
H	144.62	25	75	30	125	48.35	447.97	June 25, 1936	Nov. 23, 1936	5
I	117.56	25	75	30	125	39.00	411.56	Oct., 1936	Jan. 25, 1937	4
J	109.40	25	75	30	125	68.60	433.00	Sept., 1936	Jan. 6, 1937	4
K	142.10	25	75	30	125	45.50	442.60	Sept., 1936	Dec. 30, 1936	4
L	165.62	25	75	20	125	41.45	452.07	Sept., 1936	Jan. 29, 1937	5
M	101.18	25	75	30	125	62.75	418.93	Sept., 1936	Jan. 22, 1937	5
N	104.66	25	75	30	125	55.00	414.66	Aug. 27, 1936	Dec. 18, 1936	4
O	113.02	25	75	30	125	56.80	442.82	Aug. 20, 1936	Jan. 25, 1937	5
P	134.10	25	75	30	125	43.53	432.63	Aug., 1936	Dec. 23, 1936	4
Q	109.40	25	75	30	125	34.85	399.25	July, 1936	Nov. 28, 1936	4
R	104.66	25	75	30	125	45.20	404.86	Sept. 22, 1936	Dec. 29, 1936	3
S	104.78	25	75	30	125	46.75	406.53	Apr. 28, 1936	Nov. 27, 1936	7
T	132.86	25	75	30	125	42.66	430.52	Oct. 22, 1936	Feb. 15, 1937	4
U	146.78	25	75	30	125	41.45	443.23	Aug. 13, 1936	Jan. 14, 1937	5
V	100.94	25	75	30	125	48.65	404.59	Aug., 1936	Nov. 6, 1936	4
W	111.86	25	75	20	125	39.85	396.71	Oct., 1936	Feb. 8, 1937	4
X	117.26	25	75	30	125	41.10	413.36	May 25, 1936	Nov. 27, 1936	6
Y	130.52	25	75	30	125	43.18	428.70	Oct., 1936	Feb. 8, 1937	4
Average	$124.30	$25	$75	$28.80	$125	$51.30	$430.12	.....	.....	4.9

* Average loan represented below amounted to $8,070.74.

costs and the fair market value of the property, which is applicable only to mortgages dated before July 1, 1932, there is no effective protection of the mortgagor against excessive and unconscionable deficiency claims.

The truth is that the present method of foreclosure in New York is decidedly disadvantageous both to the mortgagor and to the mortgagee. The high cost of the foreclosure process, coupled with the interest accumulations during the period of delay, results in the addition of almost 10% to the mortgage debt while the foreclosure action is pending in court. This fact compels mortgagees to begin foreclosure much earlier than they would otherwise find necessary, and compels them to seek judgment for deficiencies which would not exist if the excessive costs were eliminated. The expensive and dilatory procedure has not encouraged bidding, for the mortgagee has been forced to buy in the security at the sale in almost every instance. The plain fact is that the present foreclosure practice in New York has not a single redeeming feature.

Much of the evil in the situation has resulted from the activities of pressure groups upon the General Assembly at Albany. The General Assembly of New York passed three bills in its recent session which can be understood only by reference to groups interested in them. Had the Governor not vetoed these bills, the cost in the metropolitan counties would have been increased substantially even beyond the present limits. At one time the source of the activity has been certain newspapers seeking legislation which would tend to increase

TABLE II. FORECLOSURE COSTS, KINGS COUNTY, NEW YORK*

Property	Advertising	Referee to Compute	Referee to Sell	Auctioneer	Attorney's Fee	Miscellaneous	Total	Dispatched to Foreclosure Attorney	Date of Acquisition	Time to Complete (Mos.)
A.....	$ 91.70	$25	$75	$25	$125	$ 52.95	$394.65	June 27, 1936	Jan. 15, 1937	6½
B.....	72.50	25	75	20	125	45.80	343.50	July, 1936	Dec. 14, 1936	4½
C.....	72.50	25	75	25	125	56.35	378.85	Aug., 1936	Dec. 9, 1936	4
D.....	70.10	25	75	30	125	48.90	374.00	Aug. 24, 1936	Jan. 6, 1937	4
E.....	70.10	25	75	30	125	49.85	374.95	Aug. 13, 1936	Jan. 7, 1937	4
F.....	74.90	25	75	30	125	61.80	391.70	May 23, 1936	Jan. 25, 1937	8
G.....	60.50	25	75	30	125	53.65	369.15	July 29, 1936	Jan. 7, 1937	5
H.....	72.50	25	75	30	125	47.65	375.15	Mar. 21, 1936	Feb. 6, 1937	10½
I.....	72.50	25	75	30	125	62.00	389.50	Aug., 1936	Dec. 28, 1936	4
J.....	79.70	25	75	30	125	48.00	382.70	July 30, 1936	Jan. 8, 1937	5
K.....	82.10	25	75	25	125	66.95	399.05	Aug., 1936	Dec. 21, 1936	4
L.....	65.30	25	75	30	125	50.60	370.90	July, 1936	Jan. 11, 1937	5½
M.....	67.70	25	75	20	125	44.55	357.25	Aug., 1936	Dec. 23, 1936	4
N.....	65.30	25	75	30	125	44.60	364.90	Sept., 1936	Feb. 15, 1937	4½
O.....	62.90	25	75	30	125	42.40	360.30	July, 1936	Nov. 27, 1936	4
P.....	67.70	25	75	30	125	46.65	369.35	Aug., 1936	Jan. 30, 1937	5
Q.....	70.10	25	75	30	125	43.50	368.60	Aug., 1936	Feb. 15, 1937	5½
R.....	65.30	25	75	30	125	49.95	370.25	Mar. 5, 1936	Jan. 26, 1937	10½
S.....	74.90	25	75	30	125	45.80	375.70	Oct., 1936	Feb. 1, 1937	4
T.....	115.70	25	75	20	125	43.95	404.65	Sept., 1936	Feb. 2, 1937	4
U.....	77.30	25	75	30	125	49.00	381.30	Sept., 1936	Feb. 8, 1937	4
V.....	62.90	25	75	30	125	39.50	357.40	Sept., 1936	Feb. 11, 1937	4
W.....	91.70	25	75	30	125	44.30	391.00	Sept., 1936	Feb. 10, 1937	4
X.....	84.50	25	75	30	125	63.60	403.10	July, 1936	Jan. 15, 1937	5½
Y.....	72.50	25	75	30	125	45.50	373.00	Aug. 25, 1936	Feb. 1, 1937	5
Average	$ 74.52	$25	$75	$28.20	$125	$ 49.91	$376.84	.....	.....	5.2

*Average loan represented below amounted to $6,738.95.

TABLE III. FORECLOSURE COSTS, NEW YORK COUNTY, NEW YORK*

Property	Advertising	Referee to Compute	Referee to Sell	Auctioneer	Attorney's Fee	Miscellaneous	Total	Dispatched to Foreclosure Attorney	Date of Acquisition	Time to Complete (Mos.)
A.....	$ 98.08	$25	$75.00	$30	$125	$ 48.25	$401.33	Aug., 1936	Nov. 23, 1936	4
B.....	101.18	25	75.00	30	125	43.45	399.63	Aug., 1936	Jan. 11, 1937	5
C.....	125.78	25	75.00	30	125	40.45	421.23	Oct. 7, 1936	Dec. 29, 1936	3
D.....	131.18	25	75.00	30	125	11.00	397.18	Apr. 13, 1936	Nov. 25, 1936	7
E.....	83.30	25	44.50	30	Salary Atty.	110.20	293.00	June, 1935	May 6, 1936	11
F.....	95.50	25	100.00	30	125	47.95	423.85	Nov. 2, 1935	Feb. 18, 1936	4
G.....	109.64	25	75.00	30	125	47.70	412.34	June 26, 1936	Feb. 4, 1937	6
H.....	101.18	25	75.00	30	125	70.15	426.33	Dec., 1936	Feb. 18, 1937	3
Average	$105.73	$25	$74.31	30	$109.38	$ 52.39	$396.86	.....	.....	5.4

* Average loan represented below amounted to $9,907.21.

the charges for advertising the sale, although it is self-evident that excess newspaper advertising is ineffective, does not attract bona fide bidders, and benefits no one. At another time the pressure has come from the auctioneers, seeking legislation to require that an auctioneer be employed for every sale. The short answer to this is that, as everyone knows, a foreclosure sale is, in the nature of things, a mere formality which could just as well be conducted by an officer of the court at nominal expense, and that the use of a professional auctioneer results in no higher price and does not benefit anyone. At still another time the political organization in power has sought legislation to require the appointment of referees to compute the debt and referees to supervise the sale, although obviously it is the duty of the court, aided if need be by the clerk, to see that the plaintiff's judgment is for the proper amount, and although the sale could be better conducted by a regular officer of the court supervising all such sales at a nominal cost. At present the referee to compute, who does not make the actual computation but merely signs a document presented by the attorney for the plaintiff, is customarily paid $25; and the referee to supervise the sale, who does very little about the sale, is frequently paid $75 or more. As a collateral result of these and other encumbrances upon the foreclosure process, with the resulting unnecessary work and time required of the plaintiff's attorney, it is impossible to get lawyers to conduct foreclosures except for fees averaging approximately twice those customarily paid in many neighboring states.

One of the most unfortunate results of the situation has been that the mortgagee has been compelled to proceed against the mortgagor and foreclose at a much earlier stage than he might have done had the foreclosure process been reasonably prompt and inexpensive. Therefore, the home owners and farm owners of New York have been faced with foreclosure much more quickly and have suffered much more severely than in most of the states. In the long run, however, it is probable that the greatest damage results from the fact that because of this situation mortgagees must restrict their lending in New York State to a much smaller percentage of value. The result is that young men in this State are not able to embark upon home

ownership when their families are young, but must wait until a much more substantial equity is accumulated through the slow process of saving out of small earnings.

As an immediate palliative, it has been suggested that mortgage institutions may take voluntary deeds in many cases at a nominal cost, thereby surrounding an inexcusable legal maze and at the same time frequently aiding the borrower through elimination of deficiency claims. But for the intricacies of statutes beyond their control, mortgagors and mortgagees are usually ready, willing, and able to settle their differences by a voluntary conveyance of the property on a fair basis. Some legal question has been raised as to whether the mortgagee is protected where he takes a voluntary deed, and there are some instances where voluntary deeds cannot be safely accepted. However, in a great many cases, voluntary deeds may safely be accepted, with reasonable precaution.

Aside from the taking of voluntary deeds, mortgagees may foreclose by advertisement under the statute in New York without going into court at all. It is true that this method is by no means as prompt or free from complication as would be desirable. Furthermore, mortgagors are not given adequate protection against excessive deficiency claims. For these reasons the New York procedure for foreclosure by advertisement falls considerably short of the ideal. Nevertheless, it is more prompt and less cumbersome than the procedure

TABLE IV. FORECLOSURE COSTS, QUEENS COUNTY, NEW YORK*

Property	Advertising	Referee to Compute	Referee to Sell	Auctioneer	Attorney's Fee	Miscellaneous	Total	Dispatched to Foreclosure Attorney	Date of Acquisition	Time to Complete (Mos.)
A	$ 38.40	$25	$75	.....	Salary Atty.	$ 49.90	$188.30	Aug., 1935	Feb. 4, 1937	5
B	32.40	25	75	$15	$125	69.25	341.65	Apr. 11, 1936	Jan. 8, 1937	8
C	32.40	.....	75	.....	125	41.60	274.00	May 26, 1936	Jan. 19, 1937	7½
D	38.40	25	75	.....	125	25.50	288.90	July 28, 1936	Feb. 2, 1937	6
E	49.45	25	75	.....	125	39.10	313.55	May 23, 1936	Jan. 20, 1937	6½
F	46.20	25	75	.....	125	52.55	323.75	Sept., 1936	Jan. 25, 1937	4
G	46.50	25	75	.....	125	37.40	308.90	June 3, 1936	Dec. 28, 1936	7
H	32.40	75	75	.....	125	46.70	304.10	Oct., 1936	Jan. 6, 1937	3½
I	27.60	25	75	.....	125	51.25	303.85	Oct. 16, 1936	Feb. 4, 1937	3½
J	44.40	25	75	15	125	43.30	327.70	Aug., 1936	Dec. 28, 1936	5
K	36.00	25	75	.....	125	47.20	308.20	Oct. 16, 1936	Jan. 13, 1937	3
L	42.00	25	75	.....	125	38.50	305.50	Aug. 27, 1936	Jan. 6, 1937	4
M	33.60	25	75	.....	125	99.70	358.30	Apr. 14, 1936	Nov. 25, 1936	6
N	38.40	25	75	.....	125	47.30	333.70	Sept., 1936	Jan. 23, 1937	4
O	32.40	25	75	.....	125	50.60	308.00	Aug. 27, 1936	Dec. 30, 1936	4
P	40.60	25	75	.....	125	58.00	323.60	May 19, 1936	Oct. 10, 1936	5
Q	46.80	25	75	.....	125	24.40	296.20	Oct. 26, 1936	Feb. 5, 1937	3½
R	45.60	25	75	15	125	45.35	330.95	June 19, 1936	Dec. 26, 1936	6
S	72.00	25	75	.....	125	83.90	380.90	Apr. 29, 1936	Jan. 11, 1937	9
T	139.20†	25	75	.....	125	82.15	446.35	Feb. 17, 1936	Jan. 5, 1937	10½
U	49.20	25	75	.....	125	45.95	320.15	Apr. 27, 1936	Jan. 22, 1937	12
V	40.80	25	75	.....	125	38.50	304.30	May 22, 1936	Jan. 21, 1937	8
W	44.40	25	75	.....	125	49.40	318.80	Aug. 27, 1936	Feb. 5, 1937	5
X	45.60	25	75	.....	125	46.85	317.45	Aug., 1936	Jan. 13, 1937	4½
Y	42.00	25	75	.....	125	48.10	315.10	Aug., 1936	Jan. 11, 1937	4½
Average	$ 45.47	$24	$75	$ 1.80	$120	$ 50.50	$317.66	.....	.....	5.8

* Average loan represented below amounted to $6,735.40.
†Service by publication.

by court action, and it results in a saving of approximately ½ the cost of foreclosure by the latter method, thus affording a more efficient remedy to the mortgagee while at the same time reducing the burden on the mortgagor.

The HOLC must pay about $5 millions for foreclosure costs in the State of New York if it submits to the usual and customary procedure in the State. Approximately $4 millions of this expense is a kind of legalized waste. The worst element of the situation is that it compels earlier foreclosure than would otherwise be necessary. A point is reached in cases of default where it would be economically possible to carry the borrower another year except for these costs, but on account of the situation immediate foreclosure is necessary. To wait a year would mean in nearly every case a loss of about $400 or $500 which would ultimately and necessarily fall on the taxpayers of the United States. The Corporation is making every reasonable effort to reduce these costs by taking voluntary deeds in many cases, by foreclosure by advertisement in many cases, and by avoiding and minimizing the cost where possible under the court foreclosure process. A procedure has been worked out, in spite of the New York law, by which unjust and unconscionable deficiency judgments may be eliminated. Excessive judgments resulting from the operation of the New York law are reviewed and are either written off or else down to an equitable basis. The policy is not to retain an excess claim or judgment beyond the difference, if any, between the full fair value of the property and the total debt. The present New York law, however, makes it difficult for mortgagees to pursue a fair and equitable course in dealing with their mortgagors, and the enactment of well considered legislation dealing with foreclosures would be most beneficial.

The present foreclosure evil in New York is preventing liberal financing of homes and thereby substantially deterring home ownership. What sensible mortgagee will lend liberally when he knows that he must spend approximately 10% in actual cash outlay to realize upon the security, and at the same time must suffer a delay which results in accumulation of taxes, insurance, and interest on the investment aggregating another full 10% or more? Furthermore, the present foreclosure system compels the mortgagee to pursue what appear to be harsh methods by starting foreclosure early and before the equity of the borrower is exhausted. In Massachusetts, a $4,000 loan on a $5,000 home, which has accumulated taxes, insurance, and interest bringing the debt to $4,500, may safely be carried for approximately another year without loss to the mortgagee because, if foreclosure is finally necessary, the mortgagee can foreclose within four weeks and at a nominal cost of not over $25 and still not suffer loss. During such period many mortgagors are able to rehabilitate themselves and save their homes. In New York a $5,000 property, securing a $4,000 loan, which has accrued taxes, insurance, and interest bringing the debt to $4,500, must be foreclosed at once because the cost of foreclosure and the accruing items during foreclosure will absorb the entire balance of the equity. New York residents, therefore, are suffering seriously on account of this situation. It is estimated that mortgagees in New York have wasted at least $40 millions in useless foreclosure costs during the past four years. They can well afford, therefore, to give attention to this question rather than to continue this waste.

Remedial Legislation Necessary

One of the great needs of the country today is a uniform foreclosure statute which will provide for reasonably prompt foreclosure at reasonable cost, and at the same time give full protection to the mortgagor. To attain these ends the statute should provide for foreclosure by advertising a reasonable number of times—possibly four insertions—in either the state bulletin, the county legal periodical, or a newspaper of general circulation in the county where the land lies. It should provide for reasonably adequate notice to the mortgagor and other interested parties and reasonable time for the mortgagor to pay his debt or adjust his affairs. It should further provide an opportunity for the mortgagor to secure a review of the sale by the court, if he has cause to complain, and an opportunity for the mortgagee to submit the sale to the court for approval, if he desires to do so. There should be a provision that the mortgagee shall waive any excess claim, if he does not have the sale approved by the court, and that if he desires to retain an excess claim against the mortgagor he shall make proof before the court not only that the sale was regular but that the price procured for the security was adequate, and thereby establish a reasonable and conscionable claim upon which he can sue, if he so desires. If such a law were enacted, the advertising costs would be nominal and there would be in practically all cases no other costs except recording costs and attorneys' fees, which would be nominal on account of the simplicity of the procedure.

Experience indicates that mortgagors, especially if the mortgagee is waiving any excess claim, will not employ counsel, and will not take the matter to court. Experience also shows that if the mortgagee can foreclose cheaply and quickly by waiving any claim for an excess or deficiency judgment he will accept the simple process and waive his deficiency claim. If this method were available in New York, one of the harshest evils of the present situation would be avoided. Even if the mortgagee insisted upon a deficiency judgment, the deficiency claim would be written down to an amount not in excess of the difference between the full value of the security and the debt, as contrasted with the present system which invites a nominal bid by the mortgagee for the security and a deficiency judgment for an excess amount representing the difference between such nominal bid and the full debt, even in cases where the property is worth substantially as much as the debt. Such legislation is feasible, ought to be adopted, and can be adopted, if fairly, clearly, and fully presented.

The New York Judicial Council is interested in the question discussed in this article, and the Chamber of Commerce of the State has been engaged in an extensive study of it. It is hoped that a mortgage law will be enacted in New York at the next session of the General Assembly which will avoid court procedure entirely in most foreclosures and provide a simple, inexpensive, and reasonably expeditious court procedure for the mortgagor or the mortgagee, in the event either of them feels that his interests require the foreclosure transaction to be reviewed and adjusted by the court on an equitable basis.

Regulation vs. Undistributed Profits Tax: A Dilemma

By HERBERT D. SIMPSON*

THE undistributed profits tax has been discussed from every conceivable angle of its relationships to corporate finance and business policy. It would seem that it ought to have some consideration from the standpoint of its relation to *other governmental policies* as well; for in recent years we have developed such a variety of governmental policies that no one of them can longer be appraised solely on the basis of its own merits or defects. No one of these policies stands "on its own merits"—it must stand also on its helpful or harmful relation to other governmental policies that affect the same areas of business or conduct.

The railroad and public utility field represents one such area in which two governmental policies, regulation and undistributed profits taxation, come into intimate contact—whether a helpful or harmful contact is something very much worthwhile to consider. Pending further clarification of the public utility holding company act, the scope of the T.V.A., and other similar developments, we may limit our consideration for the moment to the position of the railroads under these two governmental policies.

The general intent of railroad regulation, so far as it relates to earnings, is that rates will be so determined that the railroads will earn, year in and year out, not more than a reasonable return on their property. "Reasonable" includes earnings adequate to maintain plant and equipment and to induce sufficient investment of new capital from time to time to provide for necessary expansion. Expansion means ordinarily not additional mileage but amounts and types of equipment in excess of what would represent current maintenance and replacement.

Furthermore, "reasonable" means over a considerable period, with the frank expectation that for long periods of time, on account of business depressions, shifts in agricultural production and in areas of industrial activity, changes in methods of transportation, and the development of new forms of competition, the railroads may have little or no net earnings. It is the regulatory intent that larger earnings during favorable periods shall compensate for temporary contractions or deficits sufficiently to yield a "reasonable" return over the entire period under contemplation—whatever that may be.

Now, in an industry that is obliged to operate and to formulate its financial policies under these conditions, it would seem that government regulation must already have made well nigh impossible the abuses of corporate surplus that have too frequently characterized other fields and have thereby provided some justification for the principle of special taxation of undistributed earnings. The railroads cannot well be converted into personal holding companies, into private trusts, into speculative pools, or into foreign "insurance" companies; their surpluses, when they arise, cannot, without specific permission of the Interstate Commerce Commission, be used to buy up and "smother" competing

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roads for the purpose of monopolistic control. In the very nature of their situation under regulation, the growth of "unwieldy and unnecessary corporate surpluses"[1] is made almost impossible, and the ulterior manipulation of such surpluses still more difficult.

It is true that the *abuses* of corporate surplus do not constitute the only justification for the general principle of undistributed profits taxation. One basis for such taxation, and one urged by many tax students long before the adoption of our present undistributed profits tax, is the belief that *all earnings* are properly subject to taxation, regardless of the circumstance whether they happen to be currently distributed or retained in the corporation; mere differences in corporate dividend policy do not necessarily create differences in liability for taxation. The present writer subscribes to that principle in general, and so far as it is possible to give it practical application. But with regard to this principle of undistributed profits taxation three observations may be made.

In the first place, the application of such principle would imply the repeal of the various *special* corporation taxes, such as the capital stock and the excess profits tax, and their replacement by the broad taxation of corporate earnings—levied upon the stockholder when distributed in dividends and upon the corporation when not distributed. This is exactly what the President proposed in his message of March 3, 1936. Failure to adopt it was a frank acknowledgment that the tax, as enacted, was not based on the principle merely of equal taxation of corporate earnings, whether distributed or retained.

In the second place, the rate schedule still further departs from any effort to embody that principle. The arbitrary progression from 7 to 42% (normal tax +surtax) has no relation whatever to the rates which would be paid by individual stockholders, if these various earnings were distributed. The 7% minimum will be paid on some retained earnings which, if distributed, would go to stockholders in the highest income brackets; and the 42% maximum will be paid on some earnings which, if distributed, would go to stockholders in the lowest income brackets.

Our third comment has to do with something still more fundamental. This is the fact that regulation itself does bring about a prompt distribution of earnings, in the field of regulated public service industries, as effectively as the original advocates of undistributed profits taxation could wish. The steady reduction of railroad rates over a long period in the past and the current widespread reduction of public utility rates by state commissions throughout the country is actually bringing about a more thoroughgoing *distribution of earnings* in these fields than even the undistributed profits tax is doing in other fields of industry and business. It is not only a more thoroughgoing but a more widespread distribution, because in these fields earnings are being distributed not among relatively small groups of stockholders but among nation-wide groups of consumers of railroad and public utility services. We mean of course the distribution of past and potential earnings through lower rates to public utility users.

Moreover, this is a method of distributing earnings which does automatically make such earnings subject to taxation. A reduction of $100,000,000 in freight or electric power charges means a reduction of $100,000,000 *in the costs* of business and industry and, con-

[1] President Roosevelt's *Message* of June 19, 1935.

sequently, either a widening of potential profits by that amount, which will immediately become subject to income taxation, or else a still wider distribution in the form of higher wages to the employees and lower prices to the consumers in these industries.

In other words, regulation is already forcing the prompt distribution of any potential surpluses in this field, which was one of the specific objectives of the original advocates of undistributed profits taxation. It distributes the surplus, in fact, *before* the surplus accumulates, in that way effectively locking the stable before the horse is stolen rather than after.

This, we may concede frankly, does not remove all of the considerations that may be associated with the undistributed profits tax. But no candid student can deny that it greatly diminishes the validity of superimposing the one government policy, namely, undistributed profits taxation, upon an area already effectively subjected to the other government policy, namely, regulation.

And not only does regulation largely accomplish these specific objectives of undistributed profits taxation, but the railroads to a peculiar degree actually need to avail themselves of the legitimate uses of corporate surplus. With earnings restricted by rigid regulation, the railroads are subject to two frequent contingencies. In the first place, their heavy overhead in relation to operating expenses means that any decline in gross revenues in times of business recession or crop failures, makes disproportionate inroads upon their net income. Even a moderate decline in gross may wipe out net income entirely. In the second place, with the heavy bonded capitalization of most of the railroads, this decline in net, *if not bulwarked by adequate reserves*, is likely to play havoc with the payment of fixed charges and the maintenance of credit.

All of these considerations suggest a serious question whether, in the case of the railroads, the application of one governmental policy, regulation, does not make the application of the other, undistributed profits taxation, dangerous, if not actually disastrous.

But it happens that governmental agencies or their representatives have suggested still a third policy with regard to the railroads. Chairman Jesse Jones, of the Reconstruction Finance Corporation, and others have been quoted from time to time to the effect that the railroads ought to apply a portion of their earnings in prosperous times to the reduction of their heavy fixed indebtedness, thereby reducing the hazards to their credit and solvency in periods of reduced earnings or of deficits.

Probably all students of railway problems will concede the wisdom of some steps in this direction—if earnings should make it possible. The undistributed profits tax will make such a policy impossible, except at the cost of prohibitive penalties.

Consequently we have here three governmental policies, actual or proposed, namely, regulation, reduction of railroad indebtedness, and undistributed profits taxation—all seemingly working against and nullifying each other.

Perhaps the remedy may lie in invoking still a fourth policy, which comes to us by way of judicial decision. Through a long line of decisions, beginning with the Galveston case in 1922[2] and the Georgia Railway case in 1923,[3] it has been the general holding of the courts that all taxes are deductible from gross revenue for the purpose of determining

[2] *Galveston Elec. Co. v. City of Galveston*, 258 U.S. 399.

[3] *Georgia Railway & Power Co. v. R.R. Commission of Georgia*, 262 U.S. 624.

net earnings. In the former case, Mr. Justice Brandeis, delivering the opinion of the Court, declared:

"All taxes which would be payable if a fair return were earned are appropriate deductions. There is no difference in this respect between state and federal taxes or between income taxes and others."

There was some hesitancy on the part of state commissions about accepting such a sweeping treatment of taxes, regardless of their character and intent. But in the Georgia case a year later, the treatment of income taxes again came up to the Supreme Court; and Mr. Justice Brandeis, again delivering the opinion of the Court, somewhat curtly quoted the previous Galveston decision as having "settled" the question. The effect of these and subsequent decisions is to make it incumbent upon regulatory authorities to fix such rates as will enable the railroads to cover all expenses, including in expenses *all taxes of whatever kind and variety*.

With this judicial policy (because it is, after all, a matter of *policy*) imposed upon already existing regulatory policy, we are constrained to suggest that the only method of applying *all* these policies simultaneously would seem to lie along the following lines.

1st. Let the railroads retain a portion or all of their net earnings, applying them to reduction of their fixed indebtedness, thereby meeting the demand for a substantial reduction of the railroads' bonded capitalization.

2nd. The Treasury Department will then collect an income and undistributed profits tax of from 8 to 42% on all of these retained earnings, thereby carrying out the tax policy of the Federal Government.

3rd. The Interstate Commerce Commission will next go into action, and on the basis of the rulings of the courts will raise railroad rates sufficiently to enable the roads to recoup the taxes they have paid on earnings applied to reduction of their indebtedness.

If at this point some question may arise as to whether shippers and travelers will cooperate sufficiently with these various policies by *paying these higher rates*, we need only recall that we have still another governmental policy, namely, that of mutual tax exemption of state and federal bonds. This will enable us to go somewhat further.

4th. As railroad bonds are retired, and with the federal debt presumably in process either of reduction or of absorption by the Social Security funds, what will be more natural than for investors whose bonds have been called to reinvest their funds in tax-exempt state bond issues, the proceeds of which (5th) will be devoted largely to highway construction and maintenance, for the purpose (6th) of subsidizing truck and motor transportation, in order to relieve shippers and travelers of the necessity of paying the high rates established by the Interstate Commerce Commission —to enable the railroads to recoup the taxes collected by the Federal Treasury —on earnings retained by the railroads —to enable them to reduce their fixed indebtedness in accordance with the suggestion of Jesse Jones?

If, at this point, untrained readers may feel the need of some relief from the intellectual confusion seemingly involved, trained economists will experience no difficulty here. For economists are aware that the purpose of all the governmental policies that we have discussed is to relieve us of the *confusion* of laissez faire.

Physical Aspects of Country Planning

By FRANK A. WAUGH*

MAY I begin this paper with a vehement protest against the point of view adopted in much current city planning and regional planning? Many of the most pretentious and expensive studies in this field have been made exclusively from the standpoint of the city. The country, if considered at all, is regarded merely as that area where the city gets its food, water, and exercise. Grand parkways are projected through miles of rural landscape, beginning at one city and ending in another, but always designed for the wants of the cities. Parks and forests, game sanctuaries and recreation centers, bear gardens and beer gardens are scattered about the map, all for the convenience of city dwellers. Does the city want a bath? The engineers go out into the country and make a new reservoir, condemning another 50 or 100 square miles of territory for the purpose, dispossessing the farmers, extinguishing country villages, and even obliterating the cemeteries. The forefathers, trying to get a little quiet sleep, are peremptorily exhumed and carted off to the official dump.

Of course, the men who do these plans, since they are professionally competent, neither rascals nor fools, realize these defects as well as I do. They know, as you and I know, that the civic organism consists of two complementary parts, the city and the country, neither one of which can exist without the other. All genuine integral planning therefore must treat the whole organism, providing for a normal, wholesome, healthy life in each part.

From this point of view country planning is just as illogical and mischievous as city planning. Yet, because city planning has gone ahead, leaving the country behind, we ought to make special effort to help the rural regions to catch up.

At the beginning of these efforts we meet another stupid prejudice. Its most pungent formulation is found in the popular saying, "Man made the city, but God made the country." This is often mistaken to mean that, since God made the country, it requires no further attention from man; country planning is entirely supererogatory. All of which ends in a romantic idealization of the country without any ability to imagine the practical, cultural, and esthetic adjustments necessary to make this God-given countryside most serviceable to the men and women who still choose to live in it.

If we begin now to inquire what are the actual problems of planning belonging especially to the country, we shall find first of all a group of questions concerning the land. It is sad but characteristic of this blundersome human race that the matters of land use, possibly the most important to our economic existence, have never been settled by any logical study; in fact, they have been logically approached only in a few comparatively trifling details. It is obvious, of course, to the dullest mind that some lands are best suited to one form of use, other lands to quite other uses, and that good management would require that each area be allocated to that purpose which it can best serve. Land-use surveys have been proposed frequently during recent years and, in

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a few instances, notably in the State of Michigan, have been seriously undertaken. The time is thoroughly ripe—even overripe—for such surveys in all the New England states.

It need not be fatuously imagined that, when such surveys are accomplished, all lands will be instantly reassigned to their best uses as thus scientifically determined. The redistribution in any case would come slowly and imperfectly, but it would proceed intelligently and in the course of time much progress might be expected. Without such guidance of ascertained facts and well considered principles no progress is possible and the next century will find us still fuddling—fuddling and playing with politics.

In this study of land uses two categories stand out demanding critical attention. These are forests and recreation areas. Our original land subdivision seems to have been based on the idea that all forests were to be extinguished and all land converted into farms. We now know that this was a tragic mistake. Another century will probably be required to correct it; but how can such a colossal miscarriage ever be corrected without a sound plan based on stringent and fundamental studies?

It now appears, moreover, that large areas of land should be reserved for many forms of recreation. The present fashion is to appeal at this point to the statement that recreation is now our second industry, financially considered, and this of course means recreation for visitors who pay cash; but I say that the need for recreation of the people who live on the land is of still greater importance, on the scriptural principle that the husbandman must be first partaker of the fruits. This whole problem of our recreation needs must still have several years of intensive study before we know the answers.

Meanwhile, it is obvious that many of the areas reserved for forests may also be used for recreation. Better methods of adjustment and administration should be worked out; but we may remark in passing that much more is already known of this administrative technic, of handling recreation in public forests, than has yet been adopted into the official practice of the New England states.

The next step, after these broad readjustments are initiated, is to put through a somewhat similar readjustment in the matter of individual farms. The economists have shown us that many farms are too small; they cannot possibly be operated at a profit. A few farms perhaps are too large. Many farms do not enjoy a practicable balance between bottom-land, upland, and forest. In short, a somewhat extensive redistribution of land would benefit all concerned. Moreover, with our highly developed county agency system we have the machinery by which such redistribution could be effected—slowly, of course, but logically—once our country planning had set the pattern.

Hard on the heels of all this land planning come the problems of a satisfactory highway system. In the beginning, of course, our network of roads was a highly haphazard affair, built up little piece by little piece, determined by exigencies of the most local and trivial character, such as the necessity of by-passing Deacon Jones' hogpen; yet after 250 years our modern high-powered automobiles are still by-passing the same old hogpen, now two centuries forgotten. Still, a good deal has been accomplished in recent years, and these accomplishments have all been based on serious study. Only recently has it become clear (and not yet clear to everybody) that

these highway plans need a thorough-going restudy from a new point of view. The new point of view of most significance, especially to us in southern New England, comes from the very heavy use of the highways for motor recreation. A large part of the billion-dollar recreation absorbed by our visitors is taken along the state highways; but at least an equivalent amount of recreation and inspiration is drawn from our superb landscape by our own native population —by our own families—by means of our state highways and also (and this is important) by means of the wild, unpaved back-country roads. The highways are in fact the most important element in our whole recreation inventory.

Yet up to the present moment practically all highways have been planned exclusively from the utilitarian standpoint. "Farm to market" highways are still the cry, when we want to move the legislature. Thus we have a system of freight roads upon which one-half to nine-tenths of the actual traffic, instead of hauling hogs to market, is seeking pleasure and inspiration in the quiet, peaceful and beautiful rural landscape. In fact, the one most pressing problem now before us, especially urgent in Massachusetts, is to obtain a thorough restudy of our highway system made from a radically altered point of view.

A curious and interesting fact is that the most conspicuous innovations in recent highway design have been the "freeways," "parkways," and fast trunk routes. The trunk routes have been the results of regional planning; they provide improved communication between related cities. If they accidentally traverse some miles of picturesque countryside, the scenery is ignored as completely as possible and whatever is left after the road engineers have done their valuable work is soon covered over with billboards and hot-dog stands. The "parkways" and "freeways" in like manner are built about the cities, obviously for the convenience of city people. A farmer would feel quite out of place on one of them; if he brought a load of hay with him, the police would promptly drive him off. This handsomely illustrates my point that regional planning has been controlled by urban ideas and has given scant thought to the needs of the country.

I think we may safely say that the rural highways, especially the back roads, impracticable for fast traffic, just because they are more countrified, are of far greater esthetic and cultural value to the whole community, both to country people and to city dwellers, than any possible quantity of fast freeways—though I would not question the really great value of the freeway. What I would emphasize is the capital importance of these back roads, now generally neglected in road planning. Or, if they are not neglected, the improvement consists in converting them as fast as possible to the universal pattern. Why can't we have some rural roads, thousands of miles of them, kept as country roads and nurtured in their better character? Make the roadbed safe; but instead of speeding up the traffic, slow it down. It has been abundantly shown that much of the safety engineering on public roads tends toward greater speed and away from greater safety. Here in the country the obvious opportunity is to make the roads safer by delaying the traffic and allowing passengers to loiter through the tranquil countryside.

And not only safer, but more restful, more beautiful, and in every way more enjoyable. The native vegetation can be preserved or restored instead of being shamelessly destroyed according to the custom of the big highways. The scenery

can be exhibited effectively to the slow-going passengers. If there is a little brook, there will be time to enjoy its intimate pictures. If there is a vista giving on the village church or on a distant mountain, this view can be kept open and framed in trees. Beside these roads there will be stopping places where decent people can linger, the other kind stop at the roadhouses with the big signs along the main thoroughfares.

These roadside stopping places from time to time will be developed into veritable little parks in which will be preserved here a charming waterfall, there a grove of fine trees, and somewhere else a monument of local history. In our New England region, Connecticut, Maine and New Hampshire have made promising beginnings in this matter of little roadside parks; but the whole enterprise needs to be much more carefully and comprehensively planned by planners who can see the picture in the large.

Another topic demands a word of notice before this brief statement ends. The rural villages, notably in New England, have a rare distinction and charm too easily lost. Unfortunately, every village and crossroads wants to be a city with tenements, slums and all. Often the most influential men of the town are the very ones most eager to enlarge, urbanize and (as they imagine) glorify their village. Who is there who will apply any effective counterinfluence? Frankly, I don't know, but somehow it ought to be done, and this is indeed one of the most difficult problems of rural planning.

Moreover, this problem does not stand alone. While I send up my little hue-and-cry for country planning, done for the sake of the country and the country people, I realize that this same rural population is not eager for the reforms I advocate. They are opposed to all interference in their personal affairs. Any kind of zoning in country villages or along the highways or the application of any legal restrictions is generally opposed by these same citizens who, as I think, would be most benefited by it. There is much that can be done, however, with their approval and cooperation; and we may hopefully believe that, as time and country planning go on and the benefits of such action become manifest, it will be possible to extend the field of operations.

Finally, there is ever to be considered the whole outlook—the country landscape with all its hills, valleys, streams, lakes, forests and cultivated fields—a commodity which, as I firmly hold, is of the very greatest importance to all our civilization. Cities, libraries, picture galleries might be destroyed and built again, but if we lose the landscape we lose our own souls completely and irrevocably. The first, last, and greatest task of all civic planning is to restore, preserve and cultivate this landscape and apply its beauties to the further amelioration of our crude human race. This part of country planning, however, is so large and so complex that we must dismiss it now, hoping that a wiser generation yet to be born will be able to subdue the heinous sins of our own generation—war, strikes and political corruption—and solve some of these great human problems which we are now able only to propose in vague and halting terms. Let us then pray for the early arrival of that better generation, bequeathing to them the open country, what remnants we have not destroyed, along with our heartfelt blessing.

Cost of Distribution of Electricity

By BARCLAY J. SICKLER*

THE report of the Federal Power Commission on the cost of distribution of electricity[1] contains the most reliable data yet published on this subject. Some criticism might be made of the cities selected for study, but the data have the virtues of being more realistic than the studies of the New York Power Authority, and more comprehensive than any other published study. Allocations are unavoidable in any study of costs of electric service by classes of customers, but in the Federal Power Commission's study it appears that "opinion" allocations have been reduced to a minimum. For the most part, the study analyzes costs actually incurred, rather than attempting to build up costs by synthesis. As a general rule, historical costs of property were used and actual operating expenses.

In presenting its studies the Federal Power Commission was primarily concerned with the facts disclosed, without giving much attention to relationships between the cost ratios and various factors affecting such ratios. For this reason it was considered desirable to make further analysis of the raw material of the Federal Power Commission's study, and to try to determine how the facts disclosed apply to a particular state, Wisconsin. In analyzing these data comparisons have been made with similar studies of the costs of distribution for Wisconsin utilities.

Criticisms of the cities chosen for study by the Federal Power Commission apply primarily to the larger ones; those of 300,000 population and over. Four cities of this class were studied: Portland (Oregon), Seattle, Los Angeles, and Washington. The first three of these cities are located on the Pacific Coast, and in all of them competition exists, although this is of relatively limited character in Los Angeles. In Washington about ⅔ of the customers are served from an underground system. Neither of these conditions is generally found in electric service, and therefore the distribution costs obtained for cities of this class cannot be said to be typical.

The group of next largest cities studied by the Federal Power Commission, including four cities ranging from 70,000 to 107,000 population, is subject to the criticism that all are municipally owned systems. If the differences between expense ratios in municipal and private systems which have been found to prevail in Wisconsin are typical, costs in this group of cities are not representative of those in similar cities served by private utilities.

Distribution Property per Customer: Federal Power Commission

Investment in distribution property per customer depends on the varying physical difficulties of construction, type of system, extent of underground construction, quality of construction in each city, the time at which constructed, labor costs, and overhead costs incurred. With the exception of Washington, D. C. and the Seattle system of Puget Sound Power and Light Company there is relatively little difference among the

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[1] Federal Power Commission, National Power Survey, *Cost of Distribution of Electricity*, Power Series No. 3 (Washington: U. S. Government Printing Office, 1936).

cities studied by the Federal Power Commission in the types of distribution systems. These for the most part supply alternating current at 2,300 to 4,400 primary voltage in urban areas, with radial systems except for congested areas and sub-transmission lines. In some cases there was a small amount of underground and direct-current service, but only in Washington and the private company's system in Seattle was such service important. The Puget Sound Power and Light Company's Seattle system consists of a low-voltage network covering the city. This is a relatively high-cost type.

It might be expected that the presence of competition would have an important effect on the ratios. However, the study is quite inconclusive on this point. Springfield is a competitive system, but has lower distribution property per customer than Pasadena or Lansing, which are also municipal systems in similar sized towns, serving without competition. In the larger cities where competition exists only limited comparisons can be made, and the effect of competition on the ratios cannot be definitely determined. However, in Los Angeles, where duplication of facilities is largely confined to the business districts, the cost of overhead distribution property per residential customer is greater than the Portland General Electric Company and lower than the Seattle municipal plant, although in both Portland and Seattle there is city-wide competition. The "minority" companies in these cities have materially higher distribution property per customer than the "majority" utilities just named.

In the comparisons of average ratios which will follow, Washington, Puget Sound Power and Light Company in Seattle, and Northwestern Electric Company in Portland will be excluded. Washington is eliminated because of the large amount of underground service, and the other two are excluded primarily because these companies serve only about 25% of the total customers in their respective cities. After these exclusions, three cities of over 300,000 remain—Portland, Seattle, and Los Angeles. In each city the system serving about 75% of the total customers is included.

In the Federal Power Commission's study costs were allocated to various classes of customers, excluding a portion charged to street lighting service. In the following analyses, average ratios for each of the classes of customers used by the Federal Power Commission will be considered.

Two factors affecting distribution costs per customer lend themselves to statistical analysis. One is the size of the community, which affects the density of the system, and the other, average consumption per customer. Table I shows average ratios of investment per residential customer classified on these bases.

Table I indicates that investment per residential customer generally tends to be greater when consumption per customer is larger, but this tendency is not proportionate to increased use. Considering the cities from 13,000 to 40,000 population, an increase from an average consumption of about 500 to 675 kwhs., approximately 35%, brings only 7% increase in average distribution property per residential customer. Similarly, in the cities between 70,000 and 107,000 population, when average consumption per customer is almost doubled (from 775 kwhs. average to 1,500 kwhs.), this is accompanied by only 30% increase in average investment per customer.

With respect to the effect of size of city on distribution property per resi-

TABLE I. RESIDENTIAL: MEDIAN RATIOS OF DISTRIBUTION PROPERTY PER CUSTOMER*

Population Range	Number Cases	Classification by Average Kwhs. per Customer			
		400–600	600–800	800–1,100	1,500
3,000– 6,000	4	$61.10	$70.40†	$61.20†	.....
13,000– 40,000	6	49.40	52.80	.....	.....
70,000–107,000	4	45.00†	49.30	.....	$64.00†
Over 300,000	3	67.00†	.....	65.40	.....
All cities	17	$49.40	$53.60	$61.20	$64.00†
Median kwhs. per customer	.....	525	732	1,016	1,509
Number of cases	.....	8	5	3	1

* Where over 3% of the customers are served from underground systems, ratios for overhead distribution were used.
† One case only.

dential customer, the results are far from conclusive. It appears that costs tend to decrease from the smallest group (3,000-6,000 population) to the group having 70,000-107,000 population. In the largest cities (over 300,000 population) costs are higher, but it should be remembered that all these cities have competitive service. The system with about 75% of the customers was used in each case.

It may have some bearing on the results shown in Table I that all cities in the two groups of smallest cities are served by private companies, whereas all cities between 70,000 and 107,000 population are served by municipal utilities. The three largest cities consist of two municipal and one private utility.

The relationship of residential investment per customer to average kilowatthours used per customer in the cities selected from the Federal Power Commission's study is shown on Chart I. This chart shows clearly that too few cases were included in the FPC study to permit definite conclusions.

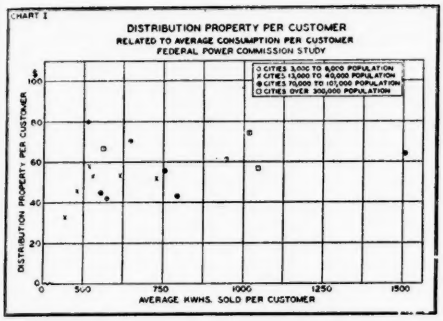
Investment in distribution property per commercial customer is summarized in Table II. This table indicates a tendency for distribution property per commercial customer to be greater when average usage is larger. Little tendency is displayed for costs to vary with size of city. The tendency toward increased investment with increased consumption is more pronounced in commercial than in residential service.

Distribution property per industrial customer is analyzed in Table III.

TABLE II. COMMERCIAL: MEDIAN RATIOS OF DISTRIBUTION PROPERTY PER CUSTOMER*

Population Range	Number Cases	Classification by Average Kwhs. per Customer			
		1,000–3,000	3,000–5,100	6,000–11,000	21,000
3,000– 6,000	4	$114	$209†	.....	$1,251†
13,000– 40,000	6	120	105	.....	.....
70,000–107,000	4	.....	205†	$267	.....
Over 300,000	3	.....	176	195†	.....
All cities	17	$117	$183	$231	$1,251†
Median kwhs. per customer	.....	1,900	4,100	7,900	21,300
Number of cases	.....	5	7	4	1

* Where over 3% of the customers are served from underground systems, ratios for overhead distribution were used.
† One case only.



Despite exceptions, this table indicates a distinct tendency for average investment per industrial customer to be greater when average consumption is greater, although average investment does not increase proportionately to average consumption. Size of city appears to have no consistent influence on these ratios.

Ratios of distribution investment per customer, combining all urban classes, are listed in Table IV. Conclusions to be drawn from this table are similar to those applying to residential service, namely: (1) investment per customer averages higher when consumption per customer is larger; (2) average investment per customer generally trends downward from the smallest cities to the 70,000-107,000 group, with higher ratios in the largest cities.

The relationship of investment per residential customer to the overall average of investment per customer is of considerable interest. If a consistent relationship could be found, this would be very useful, since overall investment per customer is available in a great many cases where a segregation of investment by classes of customers is not. An analysis of this relationship is shown in Table V. Despite the number of single instances, this table shows a definite relationship between overall average kilowatt-hours per customer and the percentage which the investment per residential customer bears to overall investment per customer. Size of city appears also to have some effect on this percentage. Larger cities in the same consumption group usually have larger percentages of residential investment per customer to overall investment per customer. It should be noted that there is considerable variation from the averages.

The preceding analyses have concerned only distribution property per customer. The Federal Power Commission also determined the amounts of land, structures, general equipment and working capital applicable to distribution. The median average ratio of such general property per residential customer is $9.03, and per overall customer, $11.66.

TABLE III. INDUSTRIAL: MEDIAN RATIOS OF DISTRIBUTION PROPERTY PER CUSTOMER*

Population Range	Number Cases	Classification by Average Kwhs. per Customer		
		10,000–20,000	30,000–52,000	88,000–211,000
3,000– 6,000	3	.....	$ 937	.....
13,000– 40,000	6	$ 570†	2,112	$ 1,374
70,000–107,000	3	.....	1,257†	2,643
Over 300,000	3	484†	612†	3,422†
All cities	15	$ 526	$1,222	$ 2,050
Median kwhs. per customer	.....	16,800	39,500	139,000
Number cases	.....	2	7	6

* The above ratios represent overhead distribution systems.
† One case only.

TABLE IV. ALL URBAN CUSTOMERS: MEDIAN RATIOS OF DISTRIBUTION PROPERTY PER CUSTOMER*

Population Range	Number Cases	Classification by Average Kwhs. per Customer				
		900–1,100	1,400–1,600	1,800–2,000	2,300–3,700	4,700
3,000– 6,000	4	$ 63†	.....	$ 88†	$ 225†	$162†
13,000– 40,000	6	70	$ 85	73†	100†	.....
70,000–107,000	4	57†	66†	.....	96	.....
Over 300,000	3	.....	87†	103	.....	.....
All cities	17	$ 60	$ 77	$ 91	$ 99	$ 162†
Median kwhs. per customer	.....	1,000	1,600	1,900	3,100	4,700
Number cases	.....	4	4	4	4	1

* Where over 3% of the customers are served from underground systems, ratios for overhead distribution were used.
† One case only.

Distribution Property per Customer: Wisconsin Cities

Data on investment in distribution property per customer have been compiled for a number of Wisconsin cities. These figures show only overall investment per customer, inasmuch as the information necessary to allocate investment by classes of customers was not available. By comparison with the Federal Power Commission's figures, it is felt that valuable conclusions can be drawn from the Wisconsin data.

The cities used in the Wisconsin study were selected to provide a representation from very small places to the larger cities, excepting Milwaukee. Eight cities were chosen at random for Wisconsin Gas and Electric Company, and the same number for Northern States Power Company. Seven cities served by small private companies and municipal utilities were used. These include all for which appraisals made by the Public Service Commission engineers in comparatively recently years (1928 and subsequently) were available in the necessary form.

Speaking generally, the figures used are on the basis of historical cost. In Wisconsin Gas and Electric Company book values as of December 31, 1933 were used, and for Northern States Power Company, a historical cost appraisal by the Commission's engineers as of July 1, 1929. In the small private companies and municipal utilities, appraisals by Commission engineers at varying dates between October 1, 1928 and December 31, 1934, plus net book

TABLE V. MEDIAN PERCENTAGES OF INVESTMENT PER RESIDENTIAL CUSTOMER TO OVERALL INVESTMENT PER URBAN CUSTOMER*

Population Range	Number Cases	Classification by Overall Average Kwhs. per Customer				
		900–1,100	1,400–1,600	1,800–2,000	2,300–3,700	4,700
3,000– 6,000	4	67%†	.....	69%†	36%†	43%†
13,000– 40,000	6	73	56%	80†	52†	.....
70,000–107,000	4	79†	65†	.....	62	.....
Over 300,000	3	.....	77†	64	.....	.....
All cities	17	73%	66%	68%	55%	43%†
Number cases	.....	4	4	4	4	1

* Where over 3% of the customers are served from underground systems, ratios for overhead distribution were used.
† One case only.

additions from the date of the appraisal to December 31, 1934 were used. In five cases these appraisals were on the basis of historical cost, and in two cases, reproduction cost at 1932 and 1934 prices.

As an approximate allocation to street lighting service, 20% of the investment in poles, conduit and fixtures and 15% of conductors were deducted. This allocation was based on general information.

The median ratios of investment in distribution property, classified by size of community and by average sales per customer, are detailed in Table VI and are summarized as follows:

TOTAL DISTRIBUTION PROPERTY PER CUSTOMER

Number of Customers	Population	Classification by Average Kwhs. Used per Customer		
		400–700	800–1,100	1,200–2,800
Less than 500	200– 1,400	$ 67	$ 99	$ 103*
500–1,500	1,400– 5,000	57	73	95
2,500–5,000	9,500–17,000	-------	62	80
10,000–13,000	36,000–50,000	-------	55*	69
Number of cases	----------	8	8	7

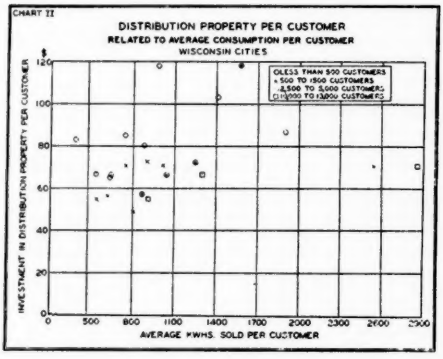
*One case only.

TABLE VI. MEDIAN RATIOS OF DISTRIBUTION INVESTMENT PER CUSTOMER IN SELECTED WISCONSIN COMMUNITIES

Classification by Size of Community (Customers)	Classification by Average Kwhs. Used per Customer		
	400–700	800–1,100	1,200–2,800
Total Distribution Property*			
Less than 500	$ 67.00	$ 99.10	$ 103.30
500–1,500	56.50	72.90	94.70
2,500–5,000	.....	61.80	79.60
10,000–13,000	.....	55.20	68.60
Poles, Conduit and Fixtures†			
Less than 500	18.40	18.20	17.40
500–1,500	15.50	18.40	21.50
2,500–5,000	.....	16.60	21.40
10,000–13,000	.....	11.70	18.80
Conductors‡			
Less than 500	16.90	19.10	28.60
500–1,500	11.90	15.80	29.40
2,500–5,000	.....	15.50	21.60
10,000–13,000	.....	14.50	16.00
Services			
Less than 500	5.90	11.80	8.80
500–1,500	7.50	8.80	10.00
2,500–5,000	.....	6.30	8.20
10,000–13,000	.....	8.10	10.00
Transformers			
Less than 500	15.20	27.10	22.70
500–1,500	9.60	7.90	13.80
2,500–5,000	.....	9.70	13.80
10,000–13,000	.....	8.50	9.30
Meters			
Less than 500	12.50	22.90	25.70
500–1,500	15.40	16.20§	20.00
2,500–5,000	.....	13.70	14.60
10,000–13,000	.....	12.40	14.50
Number of Cases			
Less than 500	5	2	1
500–1,500	3	3	2
2,500–5,000	.....	2	2
10,000–13,000	.....	1	2

* After deducting 20% of Poles, Conduit and Fixtures and 15% of Conductors as an approximate allocation to street lighting.
† After deducting 20% as an approximate allocation to street lighting.
‡ After deducting 15% as an approximate allocation to street lighting.
§ Based on two cases only, as meters in the other city in this classification are owned by the customers.

These data indicate a relationship between distribution property per customer and both size of city served and consumption per customer. Distribution property per customer is greater when consumption per customer is larger. In the same consumption class, distribution property per customer is smaller in the larger cities. Chart II shows these relationships graphically.



In Table VI the various classes of distribution property are shown separately. The different types of property generally exhibit the same tendencies as total distribution property, although exceptions to the trend are more numerous. In each class there appears to be a tendency toward increasing investment with increasing consumption per customer and, in all but services, a tendency for decreasing investment per customer in larger cities. The greatest responsiveness to both consumption per customer and size of city appears to exist in investment in conductors per customer. Size of city also has a very important effect on the ratio of transformer investment per customer, which ratio in the smallest places (less than 500 customers) averages about twice as large as in the larger places. As a general proposition, ratios of distribution property per customer appear to be more influenced by consumption per customer than by size of city.

Comparison of the results of this study with other analyses of ratios of fixed capital per customer in Wisconsin support the representative character of the averages obtained. Investment per customer in meters and services in 16 private electric companies was previously determined, and the averages obtained from this study are compared as follows with overall averages of the ratios shown in Table VI:

	Median Investment per Customer	
	Services	Meters
23 Selected Wisconsin communities (Table I)	$ 8.30	$14.70
16 Wisconsin private companies	7.40	14.50

In 8 of the 16 private companies, where overheads were not distributed to primary accounts, 10% was added for overhead costs.

It will be recalled that the Federal Power Commission's data on overall average distribution investment per urban customer showed a downward trend from smaller to larger cities through three groups—3,000-6,000 population, 13,000-40,000, and 70,000-107,000. The cities in these groups have customers ranging from 500 to 1,900, 1,900 to 9,500, and 15,000 to 32,000, respectively. The FPC data for the classes of cities previously stated are sufficiently comprehensive to reveal the trends noted, but very few cases occur in certain classifications, and hence the averages obtained are not always representative. In order to secure a sufficient number of cases to obtain fairly representative averages, it was believed desirable to combine the three groups of cities just described for the purpose of comparing the Federal Power Commission's study with the Wisconsin data.

Similarly, the Wisconsin data for cities of 500 customers or more will be combined. A comparison of averages for these groups is shown as follows:

ALL URBAN CUSTOMERS: MEDIAN RATIOS OF DISTRIBUTION PROPERTY PER CUSTOMER

	Classification by Average Kwhs. per Customer			
	900–1,100	1,200–1,600	1,800–2,000	2,300–3,700
FPC—Cities 500 to 32,000 customers	$60	$66	$81	$99
Wisconsin—Cities 500 to 13,000 customers	$62	$73	$87	$71
Combined studies	$60	$70	$87	$96

The above comparison indicates that the two studies result in similar conclusions. For example, the two Wisconsin cities at the center of the first group (900-1,100 kwhs.) fall just above or below the two middle cities in the FPC study. In the group having 1,200-1,600 kwhs. per customer, the two middle cities for the respective studies are averaged to get the combined median. In the 1,800-2,000 average consumption group the two FPC cities fall on either side of the single Wisconsin city.

The similarity between the overall averages obtained in the Wisconsin study and the Federal Power Commission's study would indicate that the averages of distribution investment per residential customer as found by analysis of the FPC data for cities of less than 107,000 population might reasonably be applied to Wisconsin. A qualification to this conclusion is found in certain dissimilarities among the cities studied by the FPC and those in the Wisconsin study. The overall average consumptions per customer, used in our analysis as a basis for classification, in the Wisconsin cities were the result of lower average residential use per customer and a higher proportion of commercial and industrial sales than in the cities studied by the Federal Power Commission. The following comparison indicates these facts:

	Classification by Overall Ave. Kwhs. per Customer			
	900–1,100	1,200–1,600	1,800–2,000	2,300–3,700
Residential Average Kwhs. per Customer (Medians):				
Wisconsin (500–13,000 customers)	478	400	516	557
FPC (500–32,000 customers)	565	531	708	744
Median Percentages of Residential Kwhs. to Total Residential, Commercial, and Industrial:				
Wisconsin (500–13,000 customers)	40.8%	25.4%	22.6%	17.3%
FPC (500–32,000 customers)	49.5	31.0	28.0	22.4

The effect of this difference on the comparability of the Wisconsin and FPC overall ratios of distribution property is not entirely clear. It does not appear, however, that this difference would make the FPC averages per residential customer lower than would apply under Wisconsin conditions.

Distribution Operating Expenses per Customer: Federal Power Commission

Operating expenses per customer depend upon many factors which affect any attempt to determine what are normal and necessary amounts. Expenses are in part dependent upon managerial policy. They vary from time to time and place to place depending upon labor rates and material prices. The factors named also affect investment per customer, of course, but are probably more important in the case of expenses, particularly when a single year's expenses are used, as in the FPC study. Consequently, in a statistical analysis of operating expense ratios, considerable variation from the averages is to be expected.

Overall average distribution operating expenses per customer as shown by

the Federal Power Commission's data are summarized as follows, omitting the same cities of over 300,000 population as in the analysis of investment per customer:

MEDIAN RATIOS OF DISTRIBUTION OPERATING EXPENSES PER CUSTOMER

	All Cases	Private Companies	Municipal Utilities
Residential	$ 7.55	$ 7.55	$ 6.62
Commercial	14.80	14.80	16.43
Industrial	71.16	67.98	71.38
All Urban Customers	$ 9.61	$ 9.94	$ 7.80

It will be observed that overall expenses per customer and expenses per residential customer in municipal utilities average lower than in private companies. However, the significance of this is not clear. The municipal utilities are all in cities of 70,000 population or larger, while the private utilities with one exception (Portland) are in much smaller cities. Furthermore, three of the municipal utilities (Tacoma, Springfield and Lansing) have unusually low expense ratios, while the other three (Los Angeles, Seattle and Pasadena) have ratios averaging about the same as the private companies.

Average ratios of total operating expenses per customer, as determined by the Federal Power Commission, are classified by type of customer, size of city, and average consumption per customer in Table VII. This table indicates no significant relationship between operating expenses per customer and average consumption per customer. The apparent relationship in the case of the overall ratios per urban customer (combining all classes) upon closer analysis appears to have little significance. The two ratios which are combined to form each of the medians of the first three classes are in each case ranked on either side of the median for the fourth class, so that the overall median is the same as that for the fourth consumption class.

Some tendency does appear, however, for the ratios of operating expenses per customer to decrease with size of city served. This tendency is evident in the case of residential, commercial and combined costs, but does not appear in the case of operating expenses per industrial customer. The explanation of the exceptionally low costs per customer for cities from 70,000 to 107,000 population is not evident, but these may result simply from the fact that three out of the four municipal utilities composing this group appear to be operated with relative economy.

Distribution Operating Expense per Customer: Wisconsin Utilities

Table VIII summarizes average expense ratios for 1935 in different groups of Wisconsin electric utilities. Medians are used, comparable with the averages previously computed from the Federal Power Commission data. These averages indicate substantial differences among ownership groups of utilities, although the reasons for such differences are not fully disclosed by these data.

Before comparison with the FPC data, the Wisconsin average expense ratios need to be further analyzed. The Federal Power Commission's ratios previously discussed cover only urban distribution and, except for four cases, cities of over 10,000 population. The Wisconsin ratios for private companies, except in a few cases, cover companies serving areas including, typically, a few fair sized cities, many small towns and villages, and a substantial number of rural customers. To make the Wisconsin data comparable to the Federal Power Commission's ratios, urban areas must be selected, so far as these can be separated, and the data must be classi-

fied by size of city. To facilitate such analysis, expenses of Wisconsin private companies were broken down by operating divisions in cases where such divisions are maintained, and ratios per customer were computed. This breakdown was carried out for distribution, utilization, and commercial expenses, but was not obtained for new business or general expenses. A large portion of these classes of expense is incurred at the general offices, and the assignment by operating districts is to a certain extent arbitrary. Furthermore, variations in these expenses appear to depend primarily on management policy. For these reasons, it was decided that an analysis of new business and general expenses by divisions would not be profitable.

The operating expense ratios by divisions were analyzed to determine the influence of the following three factors: (1) percent of rural customers to total,

TABLE VII. MEDIAN RATIOS OF DISTRIBUTION OPERATING EXPENSES PER CUSTOMER: FEDERAL POWER COMMISSION STUDY*

Classification by Size of City (Population)	Number Cases	Classification by Average Kwhs. Used per Customer				
Residential		400–600	600–800	800–1,100	1,500	All Cities
3,000–6,000	4	$ 9.17	$ 7.32‡	$ 11.87‡	.....	$ 9.60
13,000–40,000	6	8.48	11.72	.....	.....	8.76
70,000–107,000	4	8.21‡	5.54	.....	$ 4.26‡	5.54
Over 300,000	3	9.42‡	.....	6.98	.....	7.67
All cities	17	8.82	7.32	7.67	4.26‡	7.55
Number cases	.....	8	5	3	1	17
Commercial		1,000–3,000	3,000–5,100	6,000–11,000	21,000	
3,000–6,000	4	$ 15.94	$ 10.93‡	.....	$ 50.31‡	$ 15.94
13,000–40,000	6	14.84	14.80	.....	.....	14.82
70,000–107,000	4	.....	28.07‡	11.88	.....	14.49
Over 300,000	3	.....	11.67	21.18‡	.....	12.49
All cities	17	14.84	12.49	17.09	50.31‡	14.80
Number cases	.....	5	7	4	1	17
Industrial	.....	10,000–20,000	30,000–52,000	88,000–211,000		
3,000–6,000	3	.....	$ 73.88	.....	.....	$ 73.88
13,000–40,000	6	$ 26.95‡	132.66	$ 64.79	.....	67.98
70,000–107,000	3	.....	79.81‡	70.31	.....	71.38
Over 300,000	3	47.68‡	36.05‡	148.44‡	.....	47.68
All cities	15†	37.32	79.81	70.20	.....	71.16
Number cases	.....	2	7	6	.....	15†
All Urban Customers	.....	900–1,100	1,400–1,600	1,800–2,000	2,300–4,700	
3,000–6,000	4	$ 7.40‡	.....	$ 14.87‡	$13.69	$ 12.41
13,000–40,000	6	12.05	$ 10.15	13.29‡	9.61‡	11.20
70,000–107,000	4	9.68‡	6.74‡	.....	5.82	6.63
Over 300,000	3	.....	11.27‡	7.98	.....	8.86
All cities	17	8.54	9.39	11.08	9.61	9.61
Number cases	.....	4	4	4	5	17

* Above table excludes Washington, Puget Sound Power and Light Company in Seattle, and Northwestern Electric Company in Portland.
† The industrial classification was not used for two cities.
‡ One case only.

TABLE VIII. WISCONSIN CLASS A AND B ELECTRIC UTILITIES: AVERAGE EXPENSES PER CUSTOMER, 1935

	Private Utilities by Ownership Groups				Municipal Utilities
	Group A	Group B	Group C	Group D	
Distribution	$ 3.70	$ 2.61	$ 2.45	$ 2.59	$ 2.57
Utilization*	.72	.25	.43†	.21	.15
Commercial	2.89	3.12	1.96	2.78	1.27
New business	2.59	1.65	.96	.79	.....
Sub-total*	$ 10.03	$ 7.63	$ 6.41†	$ 6.67	$ 4.27
General and miscellaneous	7.59	6.34	4.02	5.78	3.20
All expenses	$ 17.62	$ 13.97	$ 9.43†	$ 12.49	$ 7.98
Number of utilities	5	2	3	8	24

* Excluding street lighting operation and maintenance.
† Excluding lamp replacement expense, since this practice was discontinued during 1935.

(2) average size of community served, and (3) average kilowatt-hours sold per customer.

The effect of the proportion of rural customers is shown in Table IX. The Group A companies are shown separately because ratios in this group average materially higher than in the other groups. It will be observed that distribution and utilization expense per customer tends to be greater in the divisions and companies with a greater percentage of rural customers. Commercial expense per customer, however,

TABLE IX. WISCONSIN CLASS A AND B ELECTRIC UTILITIES: RELATIONSHIP OF DISTRIBUTION EXPENSE RATIOS TO PERCENTAGE OF RURAL CUSTOMERS, AVERAGES OF DIVISIONAL RATIOS, 1935

Percentage Rural to Total Customers, 1935	Number of Divisions or Companies in Group	Median Averages			
		Distribution Operation and Maintenance	Customer Installation and Inspection Work	Commercial: MeterReading, Billing, Collecting, etc.	Total
Group A Companies					
Under 5%	13	$ 3.29	$ .78	$ 3.90	$ 7.92
5.1-10.0%	2	4.63	.68	2.74	8.05
10.1-20.0%	8	4.33	.94	4.10	10.05
Over 20.0%	4	5.52	1.07	4.94	11.55
All companies	27	$ 4.04	$ .80	$ 4.01	$ 8.81
All Other Private Utilities					
Under 5%	11	$ 2.18	$ .22	$ 2.70	$ 5.14
5.1-10.0%	11	2.94	.23	2.75	5.76
10.1-20.0%	11	3.33	.31	2.74	6.60
Over 20.0%	4	3.91	.33	3.22	8.36
All companies	36	$ 2.88	$ .30	$ 2.76	$ 5.88
Municipal Utilities					
Under 5%	16	$ 2.32	$ .04	$ 1.24	$ 3.85
5.1-10.0%	2	2.19	.35	1.86	4.39
10.1-20.0%	5	3.09	.17	1.34	5.11
Over 20%	1	3.32	.52	.66	4.50
All utilities	24	$ 2.57	$ .15	$ 1.27	$ 4.14

does not show significant variations among the groups with less than 20% rural customers. In the private utilities with over 20% rural customers, commercial expense ratios are higher, but this probably results primarily because of the small average size of the urban communities served in such districts. Every case falling in this group which has a high commercial expense ratio has an average size of less than 200 customers per community.

This brings us to the next basis for classification—the average size of the communities served. A summary analysis on this basis is presented in Table X, where only divisions or companies with less than 5% rural customers are included. This group represents as closely as possible the costs of *urban* distribution. For reasons already recited, Group A companies are again separately shown.

The averages in Table X indicate generally lower unit costs, considering only distribution, utilization and commercial, in the divisions and companies with a larger average size of community served. However, data for utilities with more than 1,000 customers per community do not definitely indicate decreasing costs per customer after this point. Too few cases of this class have been studied to permit a definite conclusion regarding the significance of this fact.

In the case of distribution operation and maintenance, higher ratios occur in utilities with less than 1,000 customers per community, and lower ratios in utilities larger than this. No definite trends are observable in the utilities either above or below 1,000 customers per community. Customer installation and inspection work in the Group A companies shows a declining trend as average size of community served in-

TABLE X. WISCONSIN CLASS A AND B ELECTRIC UTILITIES: RELATIONSHIP OF DISTRIBUTION EXPENSE RATIOS TO AVERAGE SIZE OF COMMUNITY, AVERAGES OF DIVISIONAL RATIOS, 1935

Average Customers per Community	Number of Divisions or Companies in Group	Expenses per Customer (Median Average)			
		Distribution Operation and Maintenance	Customer Installation and Inspection Work	Commercial: MeterReading, Billing, Collecting, etc.	Total
Group A Companies (Less than 5% Rural)					
Under 500	5	$ 4.04	$ .87	$ 4.68	$ 9.74
500–1,000	4	3.91	.78	3.86	8.07
1,000–2,000	2	3.07	.60	1.77	5.45
2,000–7,000	1	2.68	.50	1.80	4.98
11,000	1	2.59	.74	1.87	5.20
All Other Private Utilities (Less than 5% Rural)					
Under 500	4	$ 2.13	$ .14	$ 3.80	$ 6.45
500–1,000	2	2.90	.03	3.53	6.46
1,000–2,000	2	2.02	.52	2.15	4.69
2,000–7,000					
10,000–185,000	3	2.06	.63	1.53	4.23
Municipal Utilities (Less than 5% Rural)					
1,000–2,000	12	$ 2.32	$ .04	$ 1.24	$ 3.70
2,000–7,000	4	2.28	.14	1.36	4.06

creases, while in the other private utilities those with more than 1,000 customers per community have large average utilization expense ratios. Commercial expenses per customer show the greatest responsiveness to average size of community and here, in the group of All Other Private Utilities, is the only instance where the declining trend definitely continues through the divisions and companies with 10,000 and more customers per community.

It should be mentioned that the classification of the different companies and divisions was on the basis of the average number of customers per community. The typical operating division, or company with no divisions, consists of a larger community with the surrounding rural area and small towns. An average of 400 customers per community might result from one city with 10,000 customers and 50 small towns and villages with from 50 to 1,000 customers. It will be readily apparent that average expenses per customer in such a district may not represent what these would have been if one community of 400 customers were served. In brief, the data in Table IX exhibit the tendencies just noted, but do not necessarily measure the average expenses which should prevail in communities of the sizes indicated.

The relationship of the expense ratios to average kilowatt-hour sales per customer was analyzed in considerable detail, and very little evidence of correlation between these ratios was discovered. Such correlation as exists was conflicting in different groups of utilities and classes of expense.

The preceding analyses of expense ratios excluded new business and general classes, for which the detail by divisions was not obtained. Classification of new business and general expenses per customer, considering total company ratios, on the basis of percent rural and number of customers served is summarized as follows:

	Group A Companies	Other Private Utilities	Municipal Utilities
New Business Expense per Customer—1935*			
Utilities with less than 5% rural	$1.94	$ 1.32	$ .00
Utilities with more than 5% rural	2.80	.78	.22
Utilities with:			
500 to 2,000 customers	2.59	.27	.00
2,000 to 7,000 customers	2.59	.78	.00
Over 10,000 customers	2.68	1.31	-------
General and Miscellaneous Expense per Customer—1935*			
Utilities with less than 5% rural	5.99	4.41	2.97
Utilities with more than 5% rural	7.83	5.96	3.71
Utilities with:			
500 to 2,000 customers	7.83	7.30	3.22
2,000 to 7,000 customers	7.83	6.26	3.18
Over 10,000 customers	6.99	4.02	-------

*Median averages.

This table apparently indicates no relationship between new business expense per customer and the factors used for classification, except that the group of Other Private Utilities shows an increasing trend in this expense per customer as size of company increases. In the case of general expenses per customer, the ratios tend to be higher in smaller companies and in those with greater percentages of rural customers. This relationship is similar to that previously noted in distribution, utilization and commercial expenses.

A comparison of Federal Power Commission data with the averages of Wisconsin ratios may now be made. The FPC study included only one city with less than 1,000 customers (Marianna, Arkansas), and this will be excluded in comparing these data with the Wisconsin averages. For Wisconsin only the averages of divisions and companies with over 1,000 average customers per community and less than 5% rural cus-

tomers will be used. This comparison is shown as follows:

OPERATING EXPENSES PER CUSTOMER
(MEDIAN AVERAGES)

		Wisconsin Utilities—1935 (Overall)†		
	F P C Overall*	Group A Companies	Other Private Utilities	Municipal Utilities
Distribution	$ 2.44	$ 2.79	$ 2.06	$ 2.32
Utilization‡	.50	.62	.53	.04
Commercial	2.56	1.84	1.55	1.24
New business	.82	2.59§	.96§	.00§
All Expenses	$ 6.52	$ 7.68¶	$ 5.18¶	$ 3.85¶

* Excluding Washington, Puget Sound Power and Light Company in Seattle, Northwestern Electric Company in Portland, and Marianna, Arkansas.

† Including only utilities with over 1,000 customers per community and less than 5% of rural customers.

‡ Excluding street lighting expense, and in the case of Wisconsin utilities, lamp renewal expense as this practice was discontinued during 1935.

§ This is the average of all utilities of this ownership group, since percent rural and size apparently have little relationship to new business expense ratios.

¶ Computed as median of total distribution, utilization and commercial expenses per customer, plus the above average new business expense ratio.

Wisconsin municipal and private utilities, other than Group A companies, have lower average ratios of expense per customer than the cities studied by the Federal Power Commission. The Group A companies in Wisconsin have higher average ratios. This statement applies to the average of total distribution, utilization, commercial and new business expenses per customer, shown in the preceding table, and also to distribution operation and maintenance per customer. In the case of utilization and new business expenses, both groups of Wisconsin private companies average higher than the FPC data, the Group A companies' new business expense ratios being particularly high. In commercial expense per customer all Wisconsin utilities average considerably lower than the cities studied by the Federal Power Commission.

General and miscellaneous expenses have been omitted from the above tabulation because a direct comparison of FPC and Wisconsin data is not possible. The Federal Power Commission included only the portion of general expense which was considered to be allocable to distribution, while the Wisconsin data include total general expense. The basis for allocation used by the Federal Power Commission was not disclosed. Lacking such information necessary to make the data comparable, no allocation of general expenses of Wisconsin utilities was attempted.

There appears to be sufficient difference between average expense ratios of Wisconsin utilities and those determined from the FPC data to render the latter averages inapplicable to Wisconsin. This leaves us without average expenses per residential customer, since the ratios computed for Wisconsin utilities include only overall averages. These are probably too high for application to residential customers. Estimates must therefore be resorted to if expenses per Wisconsin residential customer are to be obtained. These estimates may be made by use of the relationship of the Federal Power Commission's ratios for residential customers and for all customers. The average percentages of residential ratios to overall ratios in the FPC study are summarized as follows:

AVERAGE PERCENTAGES OF RESIDENTIAL EXPENSE RATIOS TO OVERALL RATIOS

	Relationship of Median Expense Ratios	Median of Percentages for Each City	Percentages Used in This Study
Distribution	70%	72%	71%
Utilization	90	100	95
Commercial	93	94	94
New business	88	88	88

Using the percentages in the third column above, applied to the overall expense ratios, the estimated Wisconsin averages of expenses per residential customer are stated as follows, showing also the averages of Federal Power Commission data for comparison:

ESTIMATED AVERAGE RATIOS OF EXPENSE PER RESIDENTIAL CUSTOMER

	Federal Power Commission*	Wisconsin Utilities, 1935		
		Group A Companies	Other Private Utilities	Municipal Utilities
Distribution	$ 1.70	$ 2.00	$ 1.45	$ 1.65
Utilization†	.45	.60	.50	.05
Commercial	2.39	1.75	1.45	1.15
New business	.72	2.25	.85	
All expenses‡	$ 5.26	$ 6.60	$ 4.25	$ 2.85

* Excluding Washington, Puget Sound Power and Light Company in Seattle, Northwestern Electric Company in Portland, and Marianna, Arkansas.

† Excluding street lighting expense and, for Wisconsin utilities, lamp renewal expense. This latter practice was discontinued during 1935.

‡ Total of individual average ratios shown.

Total Distribution Expense per Residential Customer

The preceding analyses have indicated that the average costs of distribution property per customer determined from the Federal Power Commission's study are probably applicable to Wisconsin conditions. Chart I (page 239) shows these unit costs for the residential class. On the basis of this chart, the cost of distribution property per customer would average about $53 for cities averaging 720 kwhs. per customer (60 kwhs. per month). To this amount may be added the average investment per residential customer in land, structures, general equipment, and working capital applicable to distribution, which on the basis of the FPC data, is about $9.00. This brings the total distribution investment per customer to $62 for 720 kwhs. per customer.

Annual fixed charges may be estimated at 11.8%, which is composed of 6% for return, 3% for depreciation, and 2.8% for taxes. The depreciation allowance is determined on a 5% sinking-fund basis, assuming a 20-year life and zero net salvage. The percentage allowed for taxes is the 1935 average ratio of taxes accrued to estimated total electric property for all Wisconsin private utilities. All taxes are included in this allowance—property, income and gross revenue taxes.

This method of allowing for taxes differs from that followed by the Federal Power Commission. In their study taxes in each city, excluding income taxes and the federal 3% tax on revenues, were allocated to distribution on an undisclosed basis. Such an allocation involves a detailed study, and in Wisconsin would be complicated by the fact that utilities are assessed by the Tax Commission on the basis of property value, earning power, and other factors. These assessments are not broken down by classes of property. The tax allowances made by the Federal Power Commission for private utilities average 2.3% of fixed capital in the residential class, and 2.4% for combined classes. Four municipal utilities studied set up no taxes, while Seattle and Tacoma accrued taxes.

The Federal Power Commission computed return at three rates, 5%, 6%, and 7%, and depreciation at 3%. The basis for the depreciation allowance was not stated, but presumably was on the sinking-fund basis as no deduction was made for accrued depreciation in figuring return.

On the basis of 11.8% for fixed charges, the total such charges applicable to distribution, using the fixed capital figure previously stated, would be $7.32 per year per residential customer where consumption averaged 720 kwhs. Operating expenses (other than general expense) per residential customer in Wisconsin privately owned utilities have previously been estimated at $4.25 for private utilities other than Group A companies. This covers distribution operation and maintenance, utilization, commercial, and new business expenses in utilities averaging over 1,000 customers per community, and with less than 5%

rural customers. No estimate of the amount of general expense per residential customer, applicable to distribution, was made for Wisconsin utilities, and in the absence of such an estimate the Federal Power Commission's data for cities of 13,000 to 40,000 population may be used. These cities average $2.40 per residential customer.

Adding up the fixed charges and operating expenses previously stated, total annual costs of distribution are $13.97 in private companies in Wisconsin (other than Group A companies) for places of 10,000-40,000 population averaging 720 kwhs. annually per residential customer. This amounts to 1.94c per kwh.

This does not mean that this figure of 1.94c per kilowatt-hour should be carried over into a residential rate schedule, and all customers charged this amount per kilowatt-hour to cover distribution costs. It should be clear from the preceding discussion that distribution costs are not related in any marked degree to the number of kilowatt hours consumed. These costs depend more on the mere connection of the customers, and hence theoretically should be largely paid through a customer charge. If distribution costs are to be collected through a charge per kilowatt-hour, this should be included for the most part in the first blocks of the rate, say the first 50. The average use in the first block is always less than the full size of the block because not all customers use as much as this amount. With an overall average of 60 kilowatt-hours per month, approximately 35 kilowatt-hours would represent the average use in the first block of 50. If for rate-design purposes it is assumed that charges for the first 50 kilowatt-hour block should cover distribution costs applying to the average use in this block, then a rate of 3c to 3¼c per kilowatt-hour in the first block of 50 would cover distribution costs in the average private utility (other than Group A companies) operating in an average city of over 10,000 population. This rate does not include generation and transmission costs, of course.

We re-emphasize the fact that the above calculations of distribution costs use Federal Power Commission data on investment per residential customer, on general and miscellaneous expenses applicable to distribution, and on the relationship of residential costs to overall average costs.

Conclusions

The conclusions which have been derived in this study are summarized in the following paragraphs.

1. The Federal Power Commission's study indicates that average distribution property per customer tends to be higher in cities with larger consumption per customer. Lowest average investment per customer exists in the cities with 70,000-107,000 population. The cities both smaller and larger than this group have higher ratios.

2. Analysis of costs of distribution property per customer in Wisconsin cities yields the same conclusion—namely, that such ratios tend to be higher when use of electricity per customer is larger. In addition, the Wisconsin study indicates a tendency for higher ratios in smaller communities.

3. When cities of the same class are compared, the average investments in distribution property per customer determined by the Federal Power Commission and by analysis of Wisconsin data are very similar. This indicates that averages determined from the FPC data are probably applicable to Wisconsin conditions.

4. Distribution operating expenses per customer in the cities studied by the Federal Power Commission average lower in larger cities. Apparently, such expenses per customer are not affected by the average amount of current consumed per customer.

5. Analysis of expenses per customer in Wisconsin discloses that these are affected by several factors:

a. Such ratios tend to be different in companies of different ownership groups, and lower in municipal than in private utilities;

b. Distribution and utilization expenses per customer tend to be higher in companies with larger percentages of rural customers to the total;

c. Distribution and commercial expenses per customer tend to be lower in utilities serving larger communities;

d. New business expense per customer appears to depend primarily on the policy of the management;

e. General and miscellaneous expenses per customer tend to be higher in the smaller companies and in those with larger percentages of rural customers.

6. Wisconsin's municipal utilities and private companies, other than Group A companies, have lower average expenses per customer than the cities studied by the Federal Power Commission (considering distribution, utilization, commercial and new business).

7. Costs of electric distribution in the average city of over 10,000 population, based partly on FPC data and partly on Wisconsin costs, are covered by a rate of 3c to 3¼c per kwh. in the first block of 50, except in the average Group A company. On this basis most distribution costs are covered by the rate on the first 50 kwhs. This figure does not include any allowance for generation and transmission costs.

New York Real Estate: Its Taxation and Assessment

By JOHN E. BURTON* and DOROTHY C. BURTON†

BETWEEN Scylla and Charybdis sails the good ship Real Estate, or should that Homeric analogy read "Between the 'coming boom' and the 'coming crash'?" Much has been done to the institution of real estate, aboard ship and ashore, to run it on the rock or to suck it into the whirlpool, and as much and more in contrast must be done to put it into smooth water. Serious problems confront those people charged with ownership or administration of real estate, and the writers consider the real estate tax problem one of the ills most deeply entrenched which will stand to defeat other efforts to heal unless positive action is taken.

The real estate tax problem is age-old, the survivor but not the product of many depressions. Yet it remains and, in several jurisdictions, continues to grow. Research indicates that reforms have proceeded largely from state governments and even the monetary benefit thereof to real estate lies hidden within rising local budgets. The field for real estate tax relief lies within the local taxing jurisdictions, and the times they have tried to make a clean tackle of the problem are conspicuous by their paucity.

Printer's ink and verbal invective have been used lavishly in denunciation of the burden placed upon real estate by tax systems which are modern only in the sense that they exist in recent time. All in all, little more than spending more money has been accomplished and the proportion of such increasing local budgets falling on real estate unfortunately has kept pace.

Further words concerning the real estate tax chaos in general only increase reader satiety, but the writers have conducted several researches into the real estate tax structure of New York City which lessen the reliance upon generalization and undocumented rhetoric. Possessed of foreknowledge of the findings to be presented herein, the writers may state that the situation encountered in New York City should not be considered as necessarily typical of local real estate tax situations throughout the country. Statistical inquiries indicate that bad as the average situation may be, New York City conditions are abnormal in many important respects.

To approach the New York situation as an individual case scarcely invites a connotation of "isolated." Its collection of income from real estate in 1935 exceeded the combined incomes of the states of Arizona, Delaware, Idaho, Maine, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Rhode Island, Utah, Vermont and Wy-

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Authors' Note: The present research report is the result of a personal curiosity to ascertain the substance and dimensions of the above problem in New York City. The writers acknowledge with appreciation the cooperation of the Institute for Economic Research, Inc., and Property Research, Inc., in the preparation of the real estate selling price records which are used in testing the Manhattan assessments; the help of the Mortgage Commission of the State of New York and the Real Estate Board of New York in securing the confidential income data from property owners; and the expert assistance given freely by Miss Veronica C. Haran, Mrs. Marion R. Knehr and Mr. William R. McWilliams.

oming.[1] Property owners and rent payers in Greater New York approximate 2,000,000, and its total of population which are concerned in the situation exceeds that of Ohio, the fourth ranking state in the union. Statistics are unnecessary to indicate the enormity of the problem of savings and investments in the great financial institutions which are factors in the situation because of large unwanted real estate holdings. New York City provides a broad and fruitful field for statistical tax inquiry.

Revenue Sources of Cities over 100,000 Population

The financial statistics of 94 cities with more than 100,000 population in 1934 provide a wide base for examining the burden and trend of taxes upon real estate and for comparing the situation in New York City with that in the other 93. The study is made for the even years from 1922 through 1934[2], and the revenue considered is that total credited to a city for governmental purposes exclusive of borrowing. The total revenue collections of the 94 cities in 1922 was $1,698,564,000, of which New York City represented $408,450,000 and the other 93 cities $1,290,114,000. By 1930 the aggregate revenue had swollen to $2,819,262,000, with New York accounting for $725,646,000 and the others $2,093,616,000, or increases over 1922 of 78% for New York and 62% for the 93. After 1930 some retrenchment set in and the increase of 1932 over 1922 became 62% for New York and 50% for the companions, but in 1934 New York hit 97% and the 93 continued down to 48%.

From the standpoint of this investigation, the total revenue collections of the cities can be analyzed according to: (1) taxes collected solely from real estate; (2) other taxes obtained through personal property, poll levies, business and non-business licenses, and sales of many varieties; and (3) other forms of revenue not usually considered as taxes, including special assessments, fines, subventions, rents, interest, earnings, and the like. This analysis may be visualized in Chart I, where the total revenue for New York and the 93 cities is exhibited as 100% for each year irrespective of the increasing amounts of the totals. The three classes of revenue, depicted by the respective black and hatched areas on the chart, show the proportion of each year's total revenue coming from those three sources. The impact of local finances upon real estate stands out at a glance, but of even greater significance is the disparity between New York and the 93 other cities studied. The following data give precision to the first impression grasped from the chart:

Year	*Total Revenue Percentage of 1922*	
	New York	*93 Cities*
1922	100%	100%
1924	105	120
1926	125	141
1928	150	159
1930	178	162
1932	162	150
1934	197	148

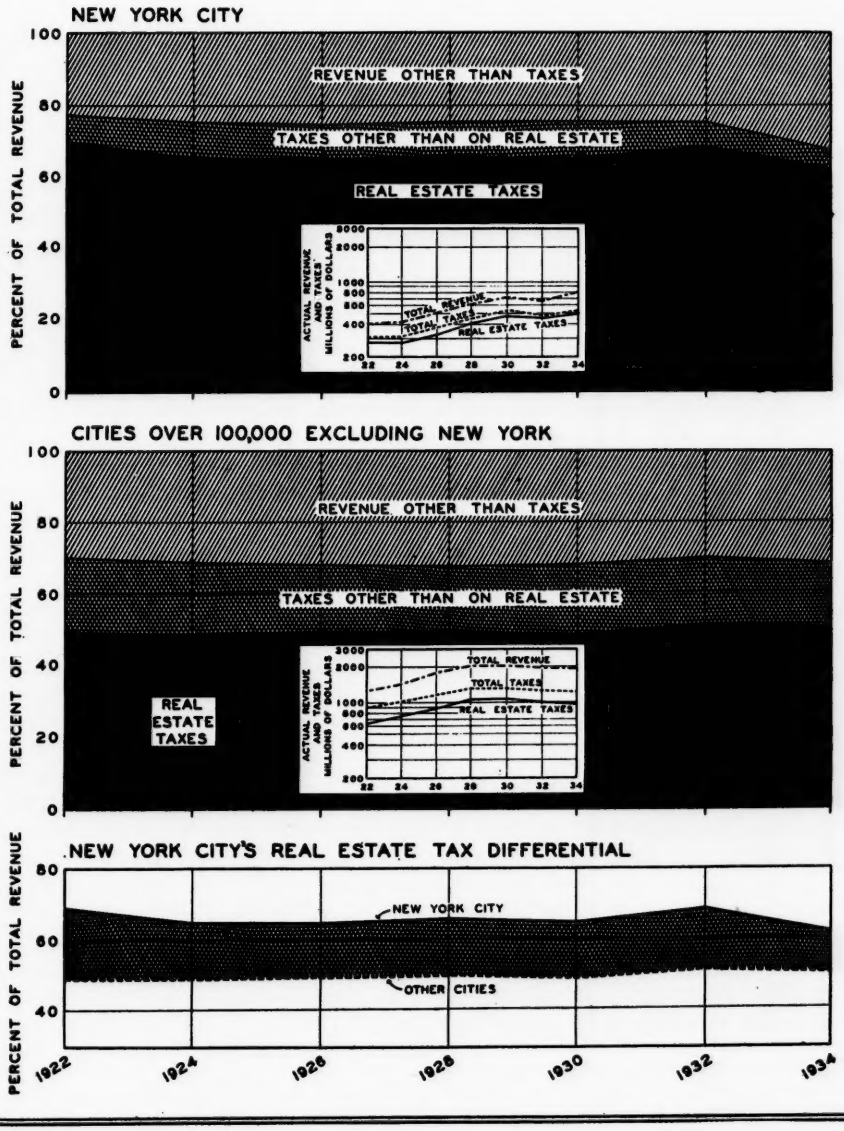
	Real Estate Taxes Percentage of Total Revenue	
	New York	*93 Cities*
1922	69%	49%
1924	65	48
1926	65	49
1928	66	49
1930	65	48
1932	68	52
1934	62	50

[1] *New York Advancing—A Scientific Approach to Municipal Government* (New York: Municipal Reference Library, 1936), p. 27.

[2] Data developed from *Financial Statistics of Cities* (Washington: Bureau of the Census) for the respective years.

CHART I

REVENUE SOURCES IN NEW YORK CITY AND ALL CITIES OVER 100,000 POPULATION IN 1934, 1922-1934



New York City has obtained consistently about 65% of all its revenue from real estate and the other municipalities have held close to ½. The differential is shown at the bottom of the chart. In 1932 this over-par dollar equivalent of the New York real estate tax was $108,138,000, and $92,945,000 in 1934.

Casual observation may indicate to some readers that the New York City situation has shown some improvement in favor of real estate because the black area in the top figure receded in 1934 from 1932. The impression is both a statistical and optical illusion. In 1932 the New York real estate collections did not fall behind 1930 as heavily as did other taxes and revenue other than taxes, so that the relative share of all revenue coming from real estate rises close to the 1922 high. In 1934 the total New York revenue was $803,018,000 instead of $660,403,000 as in 1932, which increase carried increases in dollar amount for both real estate and other revenue. The 1934 real estate tax collections were $47,825,000 greater than those for 1932. The trends of the actual dollar amounts here considered are inserted on the chart for New York City and the other 93. The statistical illusion is the result of more money raised and more money spent.

These financial statistics of 94 cities with populations exceeding 100,000 in 1934 demonstrate that real estate is the "Old Dog Tray" of local finances, and that Father Knickerbocker is more abusive of his faithful friend than is the average of the other keepers. The 93, on the whole, have been more successful in producing relatively more taxes from sources other than real estate and greater revenue other than taxes.

Taxes Levied on New York City Property: 1915-1936

The back of the "bill for real estate taxes" issued by the Department of Finance of the City of New York provides statistics interesting and illuminating to any inquiry into the real estate tax and assessment situation. The budget and taxes scheduled on that bill back are not inclusive of the total revenue collections which were matters for consideration in the previous examination, since certain local governmental expenses and coverage thereof by revenue are held to be special and are handled outside of the calculations used in arriving at the tax levy upon property for any given year. These statistics, however, are indicative of the levies made upon New York City property during the 22-year period.

The levies upon property during this period were made by the State of New York prior to 1930, and by the City through the general property tax and through city-wide and borough-wide special assessments that approximate a general tax because they are collectible with the general tax and are of such wide spread[3]. The aggregate of these levies is shown in Table I, where the ascent from 1915 through 1932 stands out clearly, rising from $159,787,000 to $534,140,000 in the latter year or an increase of 234.3%. In the last four years the level of these levies stood between 183.3 and 195.0% of the 1915 amount.

The proportions of this series of levies upon property represented by the State, the city property tax, and the "at large" (city- and borough-wide) assessments are indicated in the table for the

[3] This device of city-wide and borough-wide special assessments may easily be expanded, and probably has been, to carry expenditures which should be incorporated in the ordinary expenditures to be met by tax levies within a 2% real estate tax limit. The tax limitation is evaded through such a use of special assessments.

respective years. The largest proportion ascribed to the state tax fell in 1916, but the heaviest actual dollar levy came in 1921 when $22,041,000 was sought from property. After 1929 the State abandoned this source of revenue but the relief was swallowed up by local increases. The greatest impact of city and borough special assessments came in 1934, when the levy reached $32,600,000, and that levy has exceeded $12,000,000 each year since 1927. The levies upon property in Greater New York have been predominated by the local property tax, ranging between 91.9 and 99.4% of the total during the 22-year period.

The general property tax levy of the City of New York must be considered from the standpoint of two classes of expenditures—long-term debt charges and city and county appropriations for other than interest and redemption of long-term debt. In the latter case, excluding debt charges, the levy is limited to 2% of the assessment roll (constitutional limitation for jurisdictions of more than 100,000 population). Close to ⅔ of the City's property levy operates within the limitation, with the unlimited debt services making up the balance.

These statistics, except for those of the widespread special assessments, pertain to the general property tax, which, but for a slight adjustment, is equivalent to saying "the real estate tax." The assessment rolls upon which the property tax levies are spread include special franchises and until 1934 personal property. In 1933 the total roll of real and personal estate was $18,-

TABLE I. DIRECT GOVERNMENTAL LEVIES UPON NEW YORK CITY PROPERTY, 1915-1936*

Year	Amount	Per Cent of the Annual Total				
	Total City Property Tax, State Tax and "At Large" Assessments (000 omitted)	New York State Tax	City and Borough Special Assessment	City Property Tax Levy		
				Total	Within 2% Limit	Long-Term Debt Service
1915	$159,787	.....	.60%	99.40%	70.58%	28.82%
1916	175,651	7.96%	.10	91.94	64.24	27.70
1917	176,843	.....	.69	99.31	68.73	30.58
1918	203,401	4.16	1.15	94.69	66.53	28.16
1919	204,756	4.16	.13	95.71	67.18	28.53
1920	222,546	3.84	3.76	92.40	66.11	26.29
1921	283,669	7.77	.17	92.06	70.40	21.66
1922	287,772	5.01	.59	94.40	72.36	22.04
1923	295,803	4.26	.20	95.54	73.95	21.59
1924	312,665	6.49	.44	93.07	72.19	20.88
1925	327,952	4.95	.59	94.46	71.26	23.20
1926	361,442	4.86	1.43	93.71	69.39	24.32
1927	402,024	3.14	2.00	94.86	70.54	24.32
1928	442,145	3.20	2.97	93.83	70.25	23.58
1929	464,717	1.70	4.38	93.92	70.60	23.32
1930	497,399	.....	5.80	94.20	65.41	28.79
1931	513,435	.....	4.12	95.88	64.75	31.13
1932	534,140	.....	3.19	96.81	66.87	29.94
1933	455,802	.....	4.30	95.70	72.33	23.37
1934	471,296	.....	6.92	93.08	68.35	24.73
1935	468,549	.....	3.92	96.08	68.29	27.79
1936	452,683	.....	2.72	97.28	67.69	29.59

*Data developed from reports as follows: *Proceedings*, Board of Aldermen; *Annual Report* of the Comptroller; and *Report* of the Commissioners of Taxes and Assessment.

776,064,973, of which but $319,059,715 was personal estate and $697,160,314 special franchises. Real estate represented 94.6%, personal estate 1.7%, and special franchises 3.7% of the aggregate roll. In 1936 real estate represented 95.8% and special franchises 4.2% of the total assessment base. This demonstration of the New York City general property tax as a real estate tax may be grasped more clearly in a later analysis of the growth of city assessments since 1915.

Thus far we see real estate taxes providing a much larger proportion of Greater New York's entire revenue collections than real estate is called upon to provide proportionately in all other cities with a population in excess of 100,000. Prior to 1930 a small proportion of the total levy made upon real estate each year proceeded from the State, but since 1929 the entire direct real estate tax load has been lodged with the local administration.

The comparative analysis of New York and other cities' revenues and the description of levies upon property in New York since 1915 are but indirect approaches to the situation. While they suggest that a serious problem lies back of the general findings, a deeper analysis should be made to draw that problem into open relief. The problem has two parts: (1) the initial burden of the tax upon real estate and the fact, already demonstrated in the comparative analysis, that other sources of revenue have not been drawn upon seriously for the relief of real estate; (2) the making of real estate assessments as a base for tax application. Before approaching the making of assessments in New York City, it is possible to examine more directly the impact of real estate taxes upon real estate owners.

Real Estate Income Taken by Local Taxes

The most satisfactory test of the burden of any direct tax is its measurement in respect to income, since in this manner blanket trends and averages are reduced to a unit which can be applied to each and every property rather than that all-encompassing whole of "New York real estate." Toward this end we have received confidential operating statements for 54 income-producing properties in the Borough of Manhattan for the years, 1928/29, 1930, 1932, 1934 and 1935. It is no easy task for owners or management agents to reach into the past to furnish such data, and this sample has been received in reply to requests addressed to more than 100 large property owners and management agents. We have learned by experience that properties for which past history is available tend to be those with better supervision and management, and we believe that our sample of 54 properties, therefore, should be above average for all income-producing property on Manhattan. For this reason, we present our findings as a description of what real estate taxes mean to the 54 properties, and infer that those findings tend to be a minimum in the face of an average tax burden for the entire borough.

The gross income collected for each property for 1928 or 1929 and the other four years was reported and, being actual collections, vacancies, bad debts and allowances were automatically considered. Expenses were reported before the payment of real estate taxes or before setting aside funds to offset depreciation and obsolescence, but financial items such as interest, ground rent or dividends were stipulated to be excluded from expense. The assessment made against each property was ascertained and the tax for each year was

extended through the tax rates. The results of this examination are set forth on Chart II.

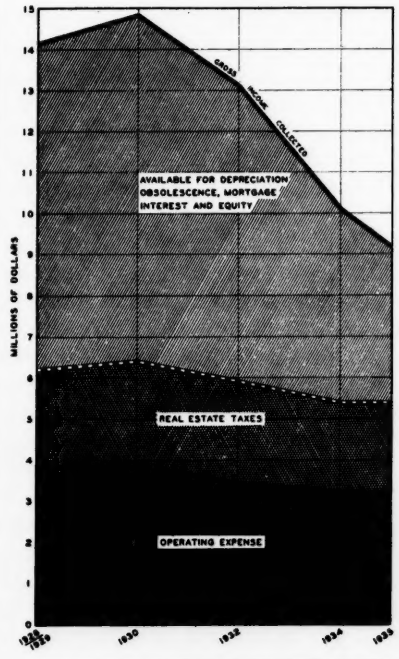
This group of 54 properties was assessed at $91,520,000 in 1930, and produced in that year a gross income of $14,829,230. Using 1928/29 as a base, the indexes of income and expense are shown below the chart and indicate the percentage trend thereof. Income, gross and net, and expense rose to 1930, but by 1932 the income slide had set in and it continued through 1935. Gross income collections dropped 35.2% from 1928/29 through 1935 and operating expense exclusive of taxes and replacement 15.9%, so that net income before taxes and depreciation tumbled 42.4%. To be completely outdone by its companion indexes, real estate taxes stepped up 5% for 1930 over 1928/29, stayed up at 3.2% increase for 1932, receded 7.9% behind 1928/29 in 1934, and 7.7% in 1935. Real estate taxes show a sympathy for rising income, but very little for the reverse situation.

CHART II

REAL ESTATE INCOME AND COST

MANHATTAN 1928–1935

54 PROPERTIES REPORTING



INDEXES

	GROSS INCOME	OPERATING EXPENSE	NET INCOME BEFORE TAXES AND DEPRECIATION
1928/29	100.0	100.0	100.0
1930	104.9	102.4	105.9
1932	92.7	90.7	93.4
1934	71.4	84.0	66.0
1935	64.8	84.1	57.0

	REAL ESTATE TAXES	PERCENTAGE OF TAXES TO NET INCOME BEFORE TAXES AND DEPRECIATION
1928/29	100.0	22.0
1930	105.0	22.7
1932	105.2	25.2
1934	92.1	31.0
1935	92.3	30.0

It is impracticable to try to estimate or calculate an adequate charge for improvement replacement when physical and economic wear and tear have had their day. That charge can be determined but time has not permitted such necessary research. Local taxes upon property have taken from 22.7% to 36.6% of net income before replacement charges and before real estate taxes during the five periods examined. The increasing "take" per year is shown below Chart II.

The Assessment of Real Estate

A large part of the real estate tax problem in New York City is occasioned, in the first instance, by the assessment of real estate to provide a base for the application of the real estate tax rate. "Tax rate × aggregate assessment roll = aggregate real estate tax," and in that trite formula conflicting tendencies may arise. The duty of the Department of Taxes and Assessments is to provide the assessment roll; another body determines the financial needs of the City and computes the tax rate; still another body collects the tax; and the three functions are separate and unrelated under ordinary circumstances. Certain ingredients of city finances, however,

tend to throw the factors of the formula into sharp conflict.

The State Tax Law stipulates that: "*All real property subject to taxation shall be assessed at the full value thereof.*"[4] The Greater New York Charter, after outlining certain other duties of deputy tax commissioners (assessors), states that they shall furnish under oath:

". . . also the sum for which, in their judgment, each separately assessed parcel of real estate under ordinary circumstances would sell if it were wholly unimproved; and separately stated, the sum for which, under ordinary circumstances, the same parcel of real estate would sell with the improvements, if any thereon; . . . "[5]

The State Constitution limits the indebtedness of counties and cities to "*ten per centum of the assessed valuation of the real estate . . . subject to taxation,*" excluding as debt so defined temporary indebtedness to be met from current or next succeeding tax collections, certain forms of a self-liquidating variety, and water-supply indebtedness not to exceed 1/10 of 1% of aggregate taxable assessments of real estate and issued for a term not to exceed 20 years. The same paragraph[6] of the Constitution establishes a tax rate limitation as follows:

"The amount hereafter to be raised by tax for county or city purposes, in any county containing a city of over one hundred thousand inhabitants, or in any such city of this state, in addition to providing for the principal and interest of the county or city debt, shall not in the aggregate exceed in any one year two per centum of the assessed valuation of the real and personal estate of such county or city . . . "

The New York City tax levies upon real estate during 1934, 1935, 1936 and 1937 have been conditioned by one other factor known as the Bankers' Agreement entered into October 30, 1933 and terminating December 31, 1937. Therein the City, in exchange for financial assistance from several banking institutions, covenanted among other things that it would stand in default if its complete tax levy upon real estate exceeded a certain formula amount in the neighborhood of $440,000,000, including debt service.

While the Bankers' Agreement pegs the overall local tax burden upon real estate close to $440,000,000, it does not circumvent the conflict which arises in the tax-producing formula given above. By excluding long-term debt service charges from the tax rate calculations we can change that formula to read: ".02 × aggregate assessment roll = aggregate real estate taxes available for city and county purposes minus debt service." Supplying further actual figures we have for 1936: .02 × $16,678,763,548 = $333,575,271. The back of the 1936 tax bill showed that the aggregate budget was $552,041,842.56 (not the aggregate to be raised in revenue and spent, but the budget used in arriving at the real estate tax rate). After deducting $133,945,777.54 for debt service, there remains $418,096,065.02 again to be reduced by an estimated General Fund (for reduction of taxation) of $109,002,676.00 and an estimated deficit of $2,650,232.25, to leave $306,443,156.77 as the amount levied within the 2% tax limitation. The amount was within its limit, but for purposes of demonstration suppose that the assessment roll was 17.6% higher than "full value" and the formula should produce $283,538,980 instead of $333,575,271. The tax limit would either be broken or there would be a greater deficit. If the 1936 assessment roll should have been reduced by 15%, then the 2% tax limit

[4] New York State Laws, Ch. 60, § 8.

[5] Greater New York Charter, § 889.

[6] Constitution of New York State, Art. VIII, § 10.

was evaded. It is obvious that the 2% tax limit can become a fulcrum beneath a teeter-totter with assessments at one end and taxes at the other. It is unfortunate that taxes and debts which approach near a legal limit influence real estate assessments, but such is the case.

Real Estate Assessment: A Technical Problem

The assessment and equalization of real estate for purposes of taxation are a technical appraisal problem and should be so considered. The assessor's task is that of an appraiser, and the assessors of this country represent the largest appraisal institution imaginable. They must appraise all taxable property in a very short time, so that they are bound to follow short-cuts in their estimating of value.

The appraisal short-cuts embraced in an assessment system that might come near to being scientific depend upon certain standard units. Such units are employed in an effort to "package" as much of real estate value as possible, and treat it as some standardized commodity. Among the appraisal methods this particular approach is known as a summation appraisal, that is, land is appraised upon the basis of units, then the building according to its units and the two added together.

The assessment system of the City of New York purports to be such, but the entire structure is sadly lacking in modern mechanization and an available and controlled set of records supporting the appraisals or assessments arrived at by the deputy commissioners.[7] Too great reliance is placed upon "rules of thumb" of more than a hundred separate deputies, which are kept quite secret. The base units for land and building, the enhancement of land value because of depth, corners and plottage, and the deductions because of physical and economic conditions of the building should be clearly indicated for public inspection. If an assessment is correctly made, there is no reason why this should not be so.

The permanent public record cards used in Cook County, Illinois and Milwaukee, Wisconsin are good examples of open publicity given to assessment methods and results.[8] In addition to certain supporting detail, a taxpayer should expect to be able to review an assessment against his property in some fashion such as follows:

Land Appraisal	
Front and depth	40′ × 125′
Unit price	$90.00
Depth factor	1.00
Corner factor	
Plottage factor	
Parcel unit	$90.00
Resulting Appraisal	$3,600.00
Building Appraisal	
Unit content of building	1015 sq. ft.
Unit price	$6.50
Reproduction cost new	$6,597.50
Percentage of new condition	80%
Resulting Appraisal	$5,278.00
Land and Building Appraisal	$ 8,878.00

Within the appraisal of the value of the land as unimproved, a considerable part of a fair and equitable assessment rests upon the determination of the so-called "standard unit front-foot value." Particular caution is to be exercised, especially in periods like the 1930's, to keep unit values from exceeding an actual level of value. In addition to the problem of the aggregate trend of land value, the preparation of unit land

[7] See *Report* of Commissioners of Taxes and Assessments, 1935, p. 7.

[8] A readily available source for inspection of such a card is Herbert D. Simpson's, *Tax Racket and Tax Reform in Chicago* (Chicago: Institute for Economic Research, 1930, p. 147).

values is confounded by shifts and movements. A predominant factor in the value of urban land is situs, so that it is as susceptible to economic forces creating obsolescence as are buildings. All factors causing obsolescence do not react equally upon land and building, for some events which cause obsolescence of buildings may at the same time cause land to increase in value, but value movements and trends should be followed in determining standard unit values, or the resulting appraisals will be inequitable.

The new reproduction cost as of an assessment date is but a starting point in building assessment procedure, a point from which many steps have to be taken. In the first place, a portion of that reproduction cost has been consumed and enjoyed through the physical wear and tear of use and age, which necessitates the application of the depreciation factor. This adjustment does not cover all factors which may cause the cost of production of a building to differ from its value, for no recognition has been given those economic factors known as obsolescence. One of the reasons for assessment inequalities is found in the assessor's lack of recognition of these factors.

It is difficult to set up depreciation tables which are not influenced by obsolescence, because but few classes of buildings in American cities have been allowed to live out their complete physical life. Because of this, annual building life ratios based upon probable useful life are more reliable than those based upon physical existence. Life ratios based upon probable useful life of buildings include the effect of physical wear and tear, or depreciation, and an effect of obsolescence. They should become the assessor's working factor between reproduction cost of buildings and the estimate of value as affected by physical and economic factors.

Under certain circumstances the above deductions will not be sufficient to lower the reproduction cost to the level of the building value, because the haphazard and unpredictable causes of obsolescence should not be included in the experience table of probable useful life. These extraordinary causes of obsolescence must become a matter of individual examination and research; fortunately they are extraordinary and the exception rather than the rule.

Assessors should follow some standards in respect to depreciation and ordinary obsolescence, and furthermore should indicate their treatment in some public assessment record. If these factors have not been recognized, the taxpayer should be able to ascertain as much.

When the assessors combine land and building value estimates, the result is an estimate of the value of the entire property. But, they should realize that the results are only *estimates* which have been arrived at by a short-cut and should be subjected to checks and tests.

New York City Property Assessment Roll, 1915–1936

The aggregate taxable property assessment roll of the City of New York increased from $8,461,000,000 in 1915 to $19,977,000,000 in 1932, an increase of 136%. The trend between 1915 and 1936 and the composition of the roll for each year are indicated in Table II. In 1915 the aggregate taxable property roll of the City was composed of 56.1% land, 35.3% buildings, making 91.4% for real estate in the ordinary sense of the word; 4.4% for special franchises and 4.2% for personal property. At its peak in 1932 the roll contained 46.2%

land, 48.6% buildings, 94.8% for the two; 3.4% special franchises and 1.8% personal property.

While the aggregate roll increased 136% in the 17 years, land assessments increased 94.4%, buildings, 225.7%, special franchises 77.1%, and personal property remained practically stationary. After 1932 the aggregate taxable roll fell off a bit; after 1933 personal estate left the roll, special franchises increased somewhat, and real estate was reduced in both land and building. In the building assessments we have no control with which to judge their rise and fall, since new assessments attach to the roll through new construction and old assessments should wear away through depreciation and obsolescence.

We have a closer control for land, except for a movement into and out of the exempt class. In 1915, 19.5% of all real estate (taxable and exempt) was exempt from taxation; in 1920 it was 21.2%; 1925, 23.5%; 1930, 22.0%; and 1935, 21.5%. The adjustment for land alone scarcely would influence the trend of land assessments shown in Table II. The value of New York's 198,330 acres of land has increased in response to demand. That total demand has grown with population and commercial increases, but within such an aggregate demand there is a shifting resulting in real and proportional *increases* and *decreases*. We shall pass by this latter problem as too large and complicated for development in the present survey.

Was the value of New York City's land equal to $7,563,000,000 for 1936? Did it rise to $9,225,000,000 for 1932 or October 1, 1931? Should the assessment as of October 1, 1935 be approximately that as of October 1, 1927? Did

TABLE II. AGGREGATE ASSESSMENT ROLL OF NEW YORK CITY PROPERTY, 1915–1936*
(000,000 omitted)

Year	Land	Improvements	Land and Improvements	Special Franchises	Personal Estate	Total Roll
1915	$4,745	$2,984	$7,729	$380	$352	$8,461
1916	4,717	3,065	7,782	425	377	8,584
1917	4,670	3,123	7,793	462	419	8,674
1918	4,660	3,240	7,900	439	251	8,590
1919	4,665	3,353	8,018	410	362	8,790
1920	4,723	3,486	8,209	418	297	8,924
1921	5,044	4,501	9,545	428	213	10,186
1922	5,100	4,724	9,824	427	211	10,462
1923	5,210	4,956	10,166	430	217	10,813
1924	5,443	5,277	10,720	429	231	11,380
1925	5,696	5,752	11,448	454	240	12,142
1926	6,213	6,309	12,522	476	259	13,257
1927	7,139	6,897	14,036	504	298	14,838
1928	7,698	7,647	15,345	501	308	16,154
1929	8,239	8,360	16,599	536	312	17,447
1930	8,928	8,711	17,639	564	380	18,583
1931	9,239	8,941	18,180	626	356	19,162
1932	9,225	9,719	18,944	673	360	19,977
1933	8,795	8,964	17,759	697	319	18,775
1934	8,001	8,456	16,457	692	.....	17,149
1935	7,660	8,292	15,952	697	.....	16,649
1936	7,563	8,420	15,983	695	.....	16,678

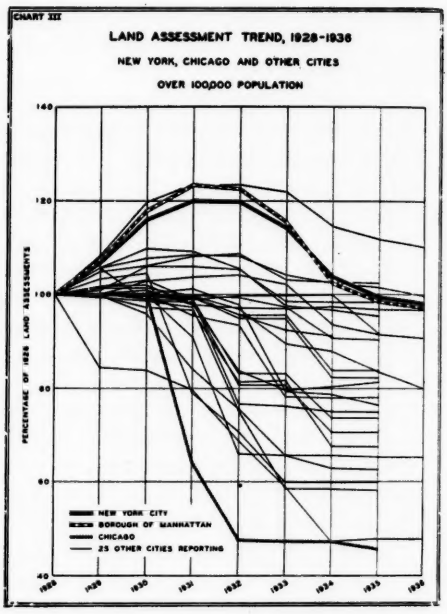
*Data developed from *Report* of the Commissioners of Taxes and Assessments.

New York land value double between the Armistice and October 1, 1931? These questions present something of a problem in assessment or appraisal verification. Perhaps a few clues can be uncovered. The problem is of such size that perspective can easily be lost, and clues are difficult to uncover when they are sought after too great an elapse of time. To suit both we have not tried to go farther back than 1928.

Land Assessment Trend in Cities over 100,000 Population, 1928—1936

We have already compared the impact of New York City's revenue collections upon real estate with the average situation obtaining within the other 93 cities with populations exceeding 100,000, but we are involved here in seeking some test of the trend of New York *assessments* since 1928. Instead of adjusting the aggregate roll for a decreasing volume of new construction during the 30's, the test can be made on the basis of land assessments alone. Fifty-eight of the 94 cities appraise or assess their land and improvements separately, and questionnaires were sent to each of the 58 requesting their aggregate land assessments for 1928 and each succeeding year. Each assessor was requested to adjust the aggregate roll for any change in the area of the city involved so that the replies might reflect a trend for a comparable unit of land.

Data were obtained for 27 cities out of the 58 which might have replied. Land assessment indexes were prepared for each city and they have been plotted on Chart III, which is not a surrealistic impression of a chicken's profile but the trends for each city from 1928 as a base year. With but one exception New York's 20% rise in land assessments to 1931 topped by far the remaining series of data. The one exception was its



satellite, Yonkers, N. Y., which carried on to a 23.2% rise for 1932. The assessments for New York's Borough of Manhattan shaded this rise, however, by 3/10 of a point in 1931. The series for Manhattan is plotted on the chart since certain of our data are confined to that borough.

The majority of the replies furnished data through 1935. The cities included on Chart III and the reduction of their land assessments between the 1928 and 1935 assessment rolls are shown below with Chicago leading the list in reductions:

Chicago, Illinois	54.1%
Cleveland, Ohio	52.1
Los Angeles, Calif.	41.9
Canton, Ohio	40.2
Toledo, Ohio	37.5
Columbus, Ohio	34.8
Tacoma, Wash.	32.7
Seattle, Wash.	29.6
Duluth, Minn.	26.6
Spokane, Wash.	25.1
Cincinnati, Ohio	23.7

Denver, Colo.	22.1
Youngstown, Ohio	18.8
St. Paul, Minn.	17.9
Trenton, N. J.	16.4
Minneapolis, Minn.	16.2
Buffalo, N. Y.	9.7
Bridgeport, Conn. (1934)	8.9
Washington, D. C.	8.5
Richmond, Va.	8.4
Milwaukee, Wis.	4.8
Jersey City, N. J.	3.4
New Haven, Conn.	1.8
Borough of Manhattan	1.3
New York City	.5
Paterson, N. J.	1.4*
Providence, R. I.	2.3*
Yonkers, N. Y.	11.9*

* Increases.

With much ado the reassessment of 1928 in Cook County, Illinois started things in Chicago, but little fuss has been made over the other 15 large cities which reduced their assessments in a range of 16 to 52% from 1928. Taxpayers in New York City, and particularly Manhattan, complain of overassessments, i. e., assessments greater than value, and the experience from other large cities would seem to bear them out, unless there was great underassessment on New York's 1928 roll, or an appreciable amount of overassessment on the many other cities' 1928 rolls. It is not usual to find overassessment of property unless such a condition is occasioned by straining debt or tax limits, and under ordinary conditions one would tend to ascribe the reductions shown above to a fall in real estate values. As to an underassessment in New York for the 1928 roll, the direct answer would have to be drawn from research beyond the financial ability of the writers to provide but, indirectly, we have been able to test the 1934, 1935 and 1936 assessment rolls for the Borough of Manhattan, which results shall be set forth, and on the basis thereof we feel warranted in concluding that New York City, or at least Manhattan, should stand higher in the land assessment reduction schedule above.

Real Estate Assessment—Net Income Trend

Before we leave the field of tests by trends we should refer once more to the data relative to the 54 income-producing properties in Manhattan. We have already described what taxes meant to those properties, but now we are dealing alone with assessments (land and building) and we can see how the assessors' estimates of value have been in or out of line with the trend of net income produced since 1928/9. Using net income after taxes but before replacement of capital in the improvement for 1928/9 and the assessments made against the 54 properties for the same period as a base of 100%, the following indexes show the course of income and assessments:

Year	*Assessment*	*Net Income*
1928/9	100	100
1930	105	106
1932	104	91
1934	91	59
1935	88	47

It appears that assessments and incomes broke between 1930 and 1932, but the assessments broke down but one point while net income dropped 15 points. The disparity between the assessment *slope* and the income *drop* to 1935 is evident above. It was stated that income was the net before establishing a reserve to offset depreciation and obsolescence. If this reserve were properly established, the decreases in real net income since 1930 would be greater than one would normally expect because income-producing property on Manhattan has received the impact of a large amount of extra-

ordinary obsolescence during the present decade. It is doubtful that this increasing obsolescence can be counteracted even by the lowered rate of interest or capitalization occasioned by the depression. Values and net income do not run an even course, but falling incomes during four or five years of the magnitude registered above should be expected to dent values by more than the assessments admit.

Manhattan Real Estate Assessments Tested by Sale Prices

In the first three sections of this study we were concerned with real estate *taxes* levied upon New York or Manhattan real estate. In the last four sections we focussed our attention upon *assessments* irrespective of what taxes those assessments might occasion, and we developed certain series of data which we feel must bear some relation to the trend of real estate values. Here we come to a method of examination where trend comparisons need not be relied upon, and assessments can be subjected to a direct test, i. e., in bona fide transfers, what was the relation between selling price and assessment of the property transferred?

The use of selling prices from bona fide transfers for checking and testing assessments for purposes of taxation is widespread, and the method has been criticized, but the criticism has been directed as much against errors in the method as against its weaknesses, and more against use of specific sales as an index for specific assessments than against a mass of sales to test an equal mass of assessments.[9] In general, notwithstanding criticism of the method, it is difficult to find a fairer or more equitable device for testing. Within a large number of sales will be found a "crystallization of public opinion" relative to a rate of return, income, location, cost of production, etc., in their effect upon value.

Enough has been said concerning use of a sale-price test under ordinary conditions, but in New York City some persons contend that there is a joker in the deck. It has been stated that the City Charter instructs assessors to find for purposes of taxation the sum for which a property would sell "under ordinary circumstances." It should not be difficult to ascertain the meaning of that phrase. In the majority of cases where such instructions are given the phrase would read "in a transaction between a willing buyer and a willing seller," or words to that effect. There is a definite and predominant school of thought following this interpretation of the joker. On the other hand, a few construe the phrase to mean a "normal market," and, even if they are correct in their interpretation, they are open to the question: "What is a normal market?"[10]

We have used but one word throughout this study to indicate a base for real estate taxes—*value*, without adjectives fore or aft. It is academic to argue what the word means, and when a meaning would be decided upon all measures of it are but estimates, and it is with the estimates that we are concerned. We are not looking for a normal-time market because we would not

[9] Interested readers should refer to: Scholz, Karl, "Inadequacy of Actual Selling Price of Real Estate as Evidence of Fair Present Value for Purposes of Taxation," CXLVIII *Annals of the American Academy of Political and Social Science* 157 (March, 1930); Simpson, Herbert D., *Tax Racket and Tax Reform in Chicago* (Chicago: Institute for Economic Research, 1930); Simpson, Herbert D. and Burton, John E., *Valuation of Vacant Land in Suburban Areas* (Chicago: Institute for Economic Research, 1931).

[10] See Rowlands, David T., "Commonly Accepted Evidences of Real Estate Value for Purposes of Taxation," CXLVIII *Annals of the American Academy of Political and Social Science* 88 (March, 1930).

know it if we found it; we are testing assessments in the Borough of Manhattan through sale prices involved in bona fide real estate transfers. Dr. Herbert D. Simpson of Northwestern University, in describing similar tests by use of 1931 and 1932 transfers in Chicago, has aptly stated the basis upon which we have proceeded:

"All of these transfers were, of course, made under conditions of depression. In that sense, they were not as 'voluntary' as sales of real estate in 1928 and 1929. But it must be kept in mind that in so far as these transfers represented only the general conditions of hardship and distress and even financial embarrassment that were common to the whole community, that fact does not make them *non bona fide* or untypical; they would not be typical if they did not reflect these conditions. It is depression conditions that make real estate values what they are, and any index of actual values should represent all the elements of distress that go with the depression."[11]

This part of the study is a test of Manhattan real estate assessments on the basis of transfers which have stood up under close inspection of their bona fide character. The accuracy and fairness of the test depend upon the method followed in obtaining the transfers. The method will be outlined at some length and then the statistical findings will be described.

1. Every real estate transfer in the Borough of Manhattan made between December 31, 1933 and March 31, 1936 has been scrutinized; that total volume was 16,322 conveyances. We have not had to think about securing a typical sample because our "sample," to begin with, was the whole under consideration. With this large volume for subject matter, we set about discarding cases which would not meet several tests of bona fide character. The enormous amount of work involved in direct conveyance examination was lessened somewhat by use of the very valuable weekly lists of recorded conveyances published by the F. W. Dodge Corporation in the *Real Estate Record and Builders' Guide*. We were able to discard thousands of cases without further examination, but those which were not discarded forthwith were "searched" in the Hall of Records. In proceeding with this work the following rules were followed closely:

a. Transfers obviously made within a family were avoided, since such sales may be attended by factors foreign to a normal market transaction.
b. Transfers made between persons with the same address were eliminated for the same reason. This may only be a doubt of bona fide character, but a doubt was sufficient for elimination.
c. Transfers which did not include full and complete property rights, such as a quit claim, were excluded.
d. Transfers involving trades were eliminated inasmuch as the regular concept of price in a trade gives way to exchange in unstandardized units.
e. Transfers of the type where a "Nimrod" Corp. might convey to a "Dormin" Corp., or "Messrs. Sponcellar and McGrath" might convey to a "Sponmac" Corp., etc., were obviously to be discarded.
f. Transfers pursuant to foreclosure (4,464 out of the 16,322) were excluded, since the seller, or even buyer, are not "willing" in the usual sense.
g. Transfers to banks or other lending institutions were excluded as "private treaty" foreclosures.
h. Transfers involving a mortgage for rehabilitation or other purposes beyond the purchase of existing property were eliminated.
i. Every transfer not otherwise discarded was searched out to ascertain if the buyer had been a mortgagee, in which case a discard was in order.
j. Transfer cases incomplete as to any facts necessary for applying the above

[11] "Real Estate Deflation in Chicago, 1928-1933," *Report VI*, Joint Commission of Real Estate Valuation, Chicago, October, 1933, p. 4.

rules, as to encumbrances involved in the conveyance and as to an index of consideration paid over the encumbrances, were eliminated.

After the long process of checking all transfers, 1,530 conveyances of real estate were found which passed close inspection for bona fide character. Our rules probably caused several normal transfers to be eliminated, but we believe that those which remained represent a sound basis of value estimates by "willing" buyers and sellers. During the checking and verification we secured the data with which it was necessary to proceed. The respective premises, blocks and lots were known, types of property, encumbrances involved in the transfer, and from revenue stamps affixed to the conveyance documents we had a reasonably accurate index of the amount of consideration paid over the encumbrances.[12]

2. The 1,530 cases with which we are dealing were sorted into three groups for purposes of determining the assessments made in each case. Sales consummated during the period from December 31, 1933 through March 31, 1934, were checked for assessments against the 1934 roll; from April 1, 1934 through March 31, 1935 against the 1935 roll; and from April 1, 1935 through March 31, 1936 against the 1936 roll. Assessments in New York are originally made as of October 1 in the year preceding that of the roll and revised prior to March 1 following. Except for the three months of sales applied against the 1934 roll, the assessments are checked by sales occurring six months before and after the original date of the assessment. In the present study no distinction is made between the three groups of cases, but sale prices are compared with the assessments which most logically apply. Assessments for 1934, 1935 and 1936 are being tested as a whole, and not one particular year.

3. In the sale prices and the assessments, secured as above described, we had the two factors necessary for the test. The ratio of the assessment to the sale price was computed in each of the 1,530 cases, i. e., each assessment was divided by each respective sale price. The remainder of the statistical description will be concerned with these ratios.

In describing the results of New York's assessment system, we face two standards established by Constitution, precedent and local law: (1) there shall be equality among properties with respect to value, and (2) unless tax and debt limitations are to be violated, the assessments shall not exceed value. Using the 1,530 sale prices as estimates of value, where do the 1,530 companion assessments stand in respect to the two standards?

In the first place, there is overassessment. The average overassessment per property or transfer is 31.4%. If the average property had sold for $100,000 it would be assessed at $131,400 on this basis. This average assessment ratio is determined from the standpoint of taxpayers or property owners irrespective of the varying sizes and values of their properties. By reference to Table III, the average is that of the several ratio classes weighted by the number of transfers falling within each class.

If the assessments are to be looked

[12] Experience has shown that, on the whole, revenue stamps can be followed with very little error. (See Simpson, *Tax Racket and Tax Reform in Chicago*, p. 14.) There is a strong, if not stronger, tendency for more stamps than necessary to be affixed than there is for less, so it might be that the computed sale price is higher than actual, but we have assumed that stamps over and under balance one another within our 1,530 cases.

upon as a whole, irrespective of the variable unit sizes which go to make up that whole, the 1,530 properties sold for $132,924,801 and were assessed at $156,200,700, which indicates an overassessment of 17.5%. Which index of overassessment is to be used depends upon the approach. From the standpoint of the taxpayer as an individual, the overassessment is 31.4% but from the standpoint of the City and the aggregate taxes levied on the assessments as a unit, the overassessment is 17.5%. In this connection refer again to pages 260-1 where the possible effect of the 2% tax limit upon assessment levels is discussed. If a 15% reduction were imputed to the entire roll, the 2% tax limit would be evaded.

In the second place, the discrepancy between the 31.4% and the 17.5% arises because all 1,530 properties were not assessed at the same level; they were not equitably overassessed. Table III indicates that 35 properties or 2.29% of the total were assessed at less than 75% of sale price, and 95 properties or 6.21% were assessed at 200% or more of sale price. In terms of aggregate sale price, 1.51% thereof fell below 75% and 1.75% went to 200% or better.

Chartography may serve better in the way of description. Chart IV presents a manipulated frequency distribution,

TABLE III. RANGE OF RATIOS OF ASSESSMENT TO SALE PRICE, MANHATTAN, JANUARY 1, 1934—MARCH 31, 1936

Per Cent of Sale Price	Number of Transfers	Per Cent of Total Number of Transfers	Aggregate Sale Price	Per Cent of Total Sale Price
Less than 75%	35	2.29%	$ 2,010,973	1.51%
75— 79.9	16	1.05	1,368,827	1.63
80— 84.9	25	1.63	7,355,325	5.53
85— 89.9	55	3.59	7,342,207	5.52
90— 94.9	56	3.66	5,879,806	4.42
95— 99.9	85	5.55	10,326,050	7.77
100—104.9	109	7.12	13,264,598	9.98
105—109.9	111	7.25	11,787,300	8.87
110—114.9	104	6.80	12,197,259	9.18
115—119.9	103	6.73	11,715,765	8.81
120—124.9	93	6.08	6,465,380	4.86
125—129.9	81	5.29	6,172,826	4.64
130—134.9	80	5.23	9,977,225	7.51
135—139.9	65	4.25	3,120,274	2.35
140—144.9	66	4.31	5,131,477	3.86
145—149.9	52	3.40	5,992,984	4.51
150—154.9	58	3.79	2,493,620	1.88
155—159.9	38	2.48	1,481,450	1.12
160—164.9	37	2.42	1,437,190	1.08
165—169.9	35	2.29	1,095,620	.82
170—174.9	31	2.03	961,950	.72
175—179.9	30	1.96	977,140	.74
180—184.9	26	1.70	695,330	.52
185—189.9	14	.92	228,550	.17
190—194.9	21	1.37	704,000	.53
195—199.9	9	.60	421,275	.32
200% and over	95	6.21	2,320,400	1.75
Total	1,530	100.00%	$132,924,801	100.00%

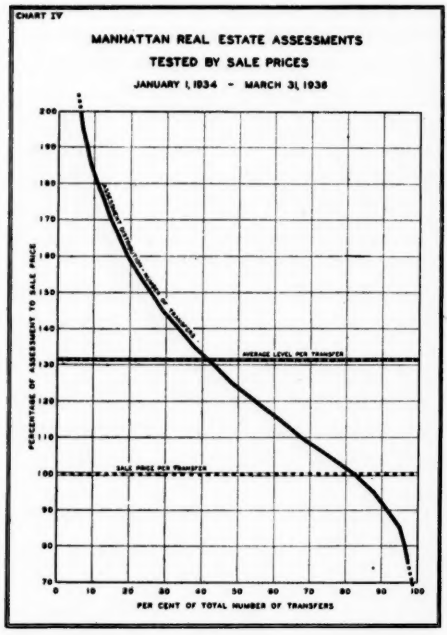


CHART IV
MANHATTAN REAL ESTATE ASSESSMENTS
TESTED BY SALE PRICES
JANUARY 1, 1934 - MARCH 31, 1938
PERCENTAGE OF ASSESSMENT TO SALE PRICE
AVERAGE LEVEL PER TRANSFER
SALE PRICE PER TRANSFER
PER CENT OF TOTAL NUMBER OF TRANSFERS

wherein levels of assessments in relation to sale prices are actually levels on the chart, and where individual transfer ratios actually stand in their respective levels above, below or on the level of sale price (100%) or the average level of the assessments.

The scale up and down the chart, shown at the left of the chart, registers the ratio, percentage or level of assessment to sale price. All sale prices are pegged at the 100% level. In the interest of simplicity we have charted but the distribution and average level computed on the basis of the number of transfers, making our approach from the standpoint of individual property owners. Both approaches must be made to exhaust the possibilities of statistical description and inquiry, but we are unprepared for such exhaustion at the present time. The average level of assessment per property or transfer is drawn across the chart at 131.4%.

The scale across the chart and shown at the bottom represents the number of properties which follow the solid black curve from the lower right-hand corner to the upper left-hand corner of the chart. Follow that curve from the lower right-hand corner—97.71% of the 1,530 cases, or 1,495 are assessed at 75% or more than sale price (it's a "more than" curve); 96.66% or 1,479 at 80% or more; 82.23% of the total at 100% or more; 54.33% at 120% or more; 25.77% at 150% or more; and on up the curve to where 6.21% or 95 cases are assessed at 200% or more than their selling prices. That is all there is to the curve; it is a backward accumulation of the number of transfers that appear in the second column of Table III opposite the several ratio classes. Stick a red headed pin anywhere on the curve and a transfer card can be drawn from the file to match it.

The overassessment indicated by these data will not come as a surprise to persons who are well versed in the tax and assessment situation in New York City, but the range of the assessments from below the 75% level to above the 200% level is more striking. On the average, the curve of assessments across the chart misses or deviates from the average level per property or transfer by 29.3%; i. e., the 1,530 levels or ratios were not concentrated sufficiently near the average to come closer than 29.3% of that standard.

Such a deviation or variation from a standard can easily obtain without any intent in an assessment system which lacks systematic mechanical control and rests too heavily upon personal opinion. Real estate values are volatile and assessors should be free to spend the major part of their time in securing changing indexes of value instead of being machines for making some 7,000,000 statistical calcula-

tions and preparing over 1,300 hand written record books per year.

The statistical data compiled merit further analysis but, pending that, one fact is obvious from the spread between 31.4% overassessment per property and 17.5% overassessment per the aggregate of the assessments. The simplest mathematics indicates that this may be occasioned by a regressive assessment. The properties of higher value must tend to be assessed at a lower level of sale price than the properties of lesser value, or the two indexes would be equal or stand in the reverse position. Offhand, such is the conclusion, but as the work is carried forward it may prove that types of property and district location carry a part of the explanation.

Summary and Implications

New York City has consistently obtained about 65% of its entire revenue from real estate through the general property tax—30% more than the average taken from that source by all other cities with populations in excess of 100,000. Since 1928 the impact upon 54 income-producing properties in Manhattan has risen from 22.7 to 36.6% of net income before taxes are paid or capital preserved. This net income of the 54 properties dropped 42.4% by 1935, while taxes came down 7.7%. Governmental charges against New York property climbed 234% between 1915 and 1932, and stood at a 183% level for 1936. The constitutional tax and debt limit may easily be a boomerang to inflate real estate assessment rolls. A wide discrepancy exists between the trend of New York land assessments and those of other large cities after 1928. Manhattan properties have been selling, on the whole, for less than their assessments. The average overassessment per property in the case of 1,530 closely examined transfers was 131.4%. While further research and analysis are in order, such are not necessary to demonstrate that an unhealthy situation exists.

An alarmist might "go to town" with these findings, because they possess certain qualities in that direction. If real estate interests complain, the retort of "selfish interest" is weak in the face of the facts. The contribution of real estate owners to the problem through their mistakes and failure to join in sensible planning of the uses of their land and capital are evident, but when they are recounted in reply to demands for adjustment of the impossible situation which exists, they are without point. Real estate health reaches far past real estate owners, and where some 65% of a local community's revenue comes therefrom, it will do well for its own good not to stand in the way of its recovery. Whatever the past, New York real estate taxes are inequitable and confiscatory.

The facts from other cities would indicate that New York can find other sources of revenue to provide relief for its disproportionate load upon real estate. Researches should be made to ascertain how other cities are able to function without taking 65% of their revenue from this one source. We place the problem of the reduction of the aggregate of public expenditures beyond present comment; we have not considered data relative to this aspect of the situation.

There is no question concerning the need for a modern system of assessing property for purposes of taxation. A new system and a re-assessment are badly needed. Dr. Simpson has set up four characteristics of a good assessment system, two of which are very

much in order here. In addition to accuracy and economy he outlines:

"In the third place, it is desirable that the general methods of assessment employed should be *known to the taxpayers* whose property is being assessed. Taxation is no field for arbitrary procedure or for arriving at results by vague and indefinite processes that are incapable of ready explanation. The humblest taxpayer has a right to know not only what his property is assessed at, but how it came to be assessed at that figure. In the fourth place, an efficient system of assessment will attain its results with a minimum waste of time, money, and patience in arguments with property owners, in complaints, hearings, appeals, and litigation and all the irritating processes that occupy so much of the attention of taxpayers at the present time. The sheer irritation of an incompetent and inequitable system of taxation is one of its greatest costs."[13]

A solution to the present situation is as important to the City of New York as it is to the property owners and rentpayers. Sound and equitable sources of revenue are a standard of advanced municipal administration. Assessments throughout a city that are consistent with values throughout the city can be indexes of great importance for public and private planning of land utilization. But to mention the conflict of the City Housing Authority and the assessors concerning assessments in certain districts opens the door to a large room of implications. Assessments that can be followed as reasonably accurate indexes of value would provide a ready source for testing the wisdom and economy of the extension of public services into new and outlying territories. A long paper could be written concerning benefits which would accrue to the City if the problem of taxes and assessments were only partially answered.

We have done little more than define the problem and demonstrate the magnitude to which it may run. The search should be carried deeper. Our sources of data which are restricted to the Borough of Manhattan should be extended to the other boroughs. Real estate owners should provide data which are vital to an extension of the research. They have been literally swamped with questionnaires relative to this, that or another thing, but precious little of such data can be used for the tax and assessment problem. Real estate owners certainly have enough at stake to warrant their cooperation in an intelligent and thorough investigation of this serious problem. It would be a novelty if a City administration would assume the initiative; ample justification exists from a purely selfish standpoint.

[13] *Tax Racket and Tax Reform in Chicago*, p. 11.

Some Unsolved Problems in Regulation of Railroad Depreciation Accounting

By HAROLD D. KOONTZ*

ALTHOUGH postponements have been made, the Interstate Commerce Commission is making preparations for putting into effect an order promulgated in 1931 and providing for extension of compulsory depreciation accounting by steam railroads to road and structures accounts. This action may bring to a close the conflict between railroad managements and the Commission over the proper extent of depreciation accounting, a conflict dating for the most part from the first depreciation orders of the Commission in 1907. But such action hardly means that all problems in this vexing subject have been solved.

When the Interstate Commerce Commission was established in 1887, the practice of providing for depreciation by charging the replacement cost of worn-out assets to operating expenses had been quite generally accepted. As a matter of fact, the Act of 1887 made no mention of depreciation. The first few years of the Commission's existence were occupied primarily with matters having to do with reasonableness of rates, rate discriminations, freight classifications, and publicity of freight charges. Apparently, the determination of the Commission to require depreciation accounting came as a by-product of this early attention to rates. Without accurate revenue and expense statements no judgment could be made of reasonable rates. Without a deduction for depreciation, revenue and expense statements would not be correct if replacements which were in effect capital improvements were charged entirely to operating expenses.

Because the Act of 1887 did not give the Commission authority to prescribe uniform accounting and compel compliance therewith, the Commission did not require depreciation accounting by the railroads until after the Hepburn Act of 1906. Although a comprehensive plan was not completed until 1914, the Commission announced its partial plan for depreciation accounting in 1907.[1] Under this plan, accounting for depreciation was made compulsory for equipment only. In consequence, nearly all the railroads refused to charge depreciation on road and structures, and continued their long practice of charging replacements in these classes of property directly to operating expenses.[2]

The failure of these depreciation provisions to result in uniform and correct statements of expenses, combined with the attention drawn to depreciation accounting by government operation of the roads during the war and by income tax laws after 1916, had much to do with the inclusion in the Transportation Act of 1920 of a clause instructing the Commission to

". . . prescribe, for the carriers subject to this Act, the classes of property for which depreciation charges may properly be included under operating expenses, and the

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This paper is based in part upon research carried on in connection with a doctoral dissertation accepted at Yale University.

[1] 21 I.C.C. Ann. Rep. 141. The Hepburn Act had amended the law of 1887 so as to give the Commission wide powers over railroad accounting and other matters.

[2] Reports for Class I railroads for 1934 show less than 1% depreciation reserves accrued on road investment, as against nearly 50% reserves on equipment. See *infra*, note 15.

percentages of depreciation which shall be charged with respect to each of such classes of property . . ."[3]

To carry out the provisions of the Act the Commission organized a depreciation section of the bureau of accounts, instructing that section to make a preliminary investigation of each class of carriers. As the result of this investigation, the depreciation section issued a tentative report early in 1923 upon depreciation charges of railroad and telephone companies. After wide distribution of these reports, public hearings were conducted to give opportunity for submission of evidence by parties concerned. Thereupon, the reports were assigned by the Commission for full argument before that body. In the fall of 1926 the Commission issued a report and order which followed closely the findings of the depreciation section requiring the carriers involved to put the new system of depreciation accounting into effect by January 1, 1928. Following this report, the railroads filed a petition for further hearing. The request was granted and the effective date of the 1926 order was indefinitely postponed. The Commission recognized that in devising the prescribed system of accounting for depreciation serious difficulties had been found, difficulties which had not been discussed in the case and for which it was uncertain the best solution had been found.

The final report and order, made public in September, 1931, carried many detailed modifications from the original, but followed the principles of the earlier reports rather closely. This order, supposedly final, and from which no commissioners dissented, was made effective January 1, 1933, thus giving the carriers time to make necessary changes in their accounting systems.[4]

Later, at the carriers' request, the Commission postponed the effective date of the order. The railroads had declared that the existing business depression made setting up of depreciation accounts impracticable. Even though the final date for compliance has not yet been set, the Commission and most of the railroads are making preparations for putting the extended depreciation accounting into effect.

Since the telephone companies were in entire sympathy with the use of depreciation charges, the orders concerning them do not present as many points of issue as is the case with the railroads. In the present study it is proposed to survey rather briefly the depreciation accounting plan as developed in recent years by the Commission and to point out some of the problems for which the proposed solutions are not wholly satisfactory.

The Interstate Commerce Commission's Depreciation Regulations

One of the basic findings made by the Commission had to do with formulation of a concept of depreciation. Much of the conflict over depreciation has resulted from a divergence of views concerning its nature. The Commission adopted a loss-of-service-value concept of depreciation. It took as a basis the position that depreciation exists as a physical or functional fact, since, with passage of time, the number of service units originally in a piece of operating property diminishes. If these service units decrease, the Commission felt that service value must diminish over the life of a unit of property, even though that unit may function efficiently. In accounting for this loss of service life,

[3] The Act to Regulate Commerce, as amended February 28, 1920, Section 20 (5), 41 U.S. Stats. 493.

[4] Reported in Depreciation Charges of Telephone and Steam Railroad Companies, 177 I.C.C. 351. The 1926 report and order were in 118 I.C.C. 295.

the Commission required as a practical measure that only losses from factors which are reasonably predictable should be included.[5] In carrying out this principle, the following factors were selected as reasonably predictable causes of loss against which depreciation charges must be made: age, wear, obsolescence, inadequacy, and supersession. Wherever losses of property units are caused by circumstances not reasonably predictable, other methods, such as insurance or amortization over the future, were suggested.

It is interesting to note in passing that the railroads could very well accept this concept of depreciation, and, at the same time, advocate the replacement method[6] as a reasonable way of handling the depreciation loss. The Commission felt, however, that the depreciation reserve system alone best reflects the "fact" of depreciation as the loss accrues. If depreciation exists as a fact, reasoned the Commission, it accrues gradually over the service life of property, and neither periodic operating costs nor asset costs could be stated accurately unless a reserve be accrued to offset this loss of service value as it accumulates.[7]

Once the depreciation reserve system was decided upon, the Commission was faced with several alternatives for calculating the periodic depreciation allowances. The Commission held that the straight-line method offered accurate enough results and was more practicable than refined methods such as the sinking-fund or annuity methods.

The determination of service lives was left in the first instance to the carriers. They were to make estimates of service life applicable to their particular property, and to submit these estimates to the Commission for approval. As is customary with straight-line accounting, these estimates were to be in units of time, e.g., years. But to meet objections that depreciation based on time would make for inflexibility of annual charges, the Commission did provide that carriers might measure depreciation in units of use, e.g., car-miles, if they could "develop a sound plan for doing this."[8]

The Commission allowed the railroads to use gross salvage value in computing the depreciation loss. It was well aware that using net salvage value (gross salvage value less cost of demolition or removal) would be sounder practice, but it espoused this apparent error on the grounds of practicability. The railroads had shown how difficult and expensive computation of net salvage value in track accounts would be, and had asked that in all instances the cost of recovering salvage be charged to operating expenses. The Commission acceded to this request "for the present" since it thought the difference to be "negligible."

In computing depreciation charges on equipment, the railroads have used the unit basis. In other words, each piece of equipment was depreciated as a unit, charges being made on each unit and such charges ceasing when the unit was fully depreciated or put out of service. Since the telephone companies

[5] Depreciation Charges of Telephone and Steam Railroad Companies, 177 I.C.C. 351, 422. This concept bids fair to be widely used after acceptance of the gist of the Commission's definition by the Supreme Court in *Lindheimer et al. v. Ill. Bell Tel. Co.*, 292 U.S. 151, 167 (1934).

[6] Charging replacements directly to operating expenses. In some cases where property units are large, retirements are charged to operating expenses and the replacement is charged to the asset account. Hence the railroads have used both replacement and retirement methods.

[7] Depreciation Charges of Telephone and Steam Railroad Companies, 118 I.C.C. 295, 308. The Commission gives many other reasons for use of the depreciation reserve method, based largely upon the argument that accruing depreciation reserves is sound finance.

[8] Depreciation Charges of Telephone and Steam Railroad Companies, 177 I.C.C. 414.

have accounted for depreciation by groups of property, they presented a strong case for depreciation charges to be made along these lines. The Commission agreed with the telephone companies, and provided that, for composite ledger and balance sheet purposes, a single reserve should be used, but that the carriers should maintain subsidiary records showing the depreciation reserves allocable to certain classes of property.

Not all classes of depreciable property were included in the depreciation accounting plan. A few classes of property, obviously depreciable, were excluded for accounting purposes. For example, the account of "roadway small tools" was omitted. While this account clearly represents items subject to depreciation, the Commission thought it would be impracticable to include this class of property in the plan. Other accounts, such as "grading" and "ballast," were reserved for further study. On the other hand, "ties" and "rails" accounts, covering numerous units, were included as items upon which depreciation charges should be made, because of the financial significance of these items in the aggregate.

One of the most difficult features of laying down a complete depreciation system was the depreciation base. Faced with what seemed to be adverse Supreme Court opinion,[9] the Commission prescribed original cost in principle as the depreciation base, instead of replacement cost or present cost. Because original costs were not always ascertainable, the Commission prescribed for the most part the use of ledger costs as being the nearest practical approach to original cost.

Some little difficulty was also encountered in regard to past depreciation against which no reserves had been accrued. Since depreciation is a fact, and because "accounting fails of its purpose if it does not supply the best available information with respect to this or any other similar fact,"[10] then to portray this fact, past depreciation for which no provision has been made should be taken into account. Even though believing strongly in the soundness of this position, the Commission felt that it did not have the legal authority to require the railroads to show this unaccrued depreciation on their books.[11] As a result, the Commission made it optional with the carriers whether past depreciation unprovided for should be charged off, either in whole or in part, to profit and loss. But each carrier was ordered to make an estimate of this item and report it to the Commission for purposes of statistical record.

From this very brief summary of railroad depreciation accounting regulation, one can see the extraordinary difficulties which the Commission has faced in extending the scope of such accounting. Not only has the Commission contributed to the understanding of depreciation accounting, but it is making a noteworthy attempt to bring about a more accurate statement of assets and expense in the country's largest industry "affected with the public interest." Nevertheless, there remain certain problems both within the accounting system itself and outside of it concerning which questions arise.

[9] In *United Rwys. & Elec. Co. v. West*, 280 U.S. 234 (1930) the Supreme Court held that in a rate case confiscation would result if depreciation charges were calculated on original cost where values had advanced above that cost.

[10] Depreciation Charges of Telephone and Steam Railroad Companies, 177 I.C.C. 351, 457-8.

[11] Because of the decision in *Board of Pub. Util. Comrs. v. New York Tel. Co.*, 271 U.S. 23 (1925) in which the Supreme Court held that present patrons of a utility cannot be relieved of their burdens because of past excess rates any more than they can be required to make up past deficiencies.

Depreciation Reserve Accounting

So far as the Interstate Commerce Commission is concerned, setting up reserves through depreciation allowances equal, at least approximately, to loss of service value of property is a policy about which no further doubt exists. In industrial accounting also this policy is widely accepted. In the telephone industry, the practice of making liberal charges on account of depreciation has been very profitable, because these high charges could rather easily be passed on to users of the service.[12]

From the time the Interstate Commerce Commission first dealt with depreciation, either in valuation or in accounting, the railroad's depreciation policy has been fairly consistent. In short, the attitude of the carriers has been, and apparently is, summed up in the contention that depreciation is a matter of efficiency and, so long as railroad property is maintained in efficient operating condition, depreciation does not exist. This concept of depreciation would obviously imply that there is no need for depreciation reserve accounting or deduction of accrued depreciation in valuation, excepting deferred maintenance. All necessary accounting for depreciation would be taken care of by expenditure within each fiscal period of enough funds in repairs, renewals and replacements to keep the property at a level of operating efficiency.

No one would disagree with the statement that property does lose value through the causes which the Commission mentions as "reasonably predictable." Where the Commission and carriers do disagree is on the depreciation plan as ordered, or any depreciation reserve plan, as the best way of caring for that loss. The carriers believe that nothing will be gained except work and that operating expenses may be misstated because of the inflexible nature of charges under reserve accounting. Railroad opposition to such accounting is shared by many gas, electric, and water companies and, until 1936, by the National Association of Railroad and Utilities Commissioners.[13]

The possibilities of depreciation reserve accounting have perhaps not been recognized fully by those interested in railroad finances. Adequate depreciation charges in the past might have saved many a railroad from bankruptcy during the last few years. With receiverships and trusteeships resulting from inability of carriers to meet high fixed interest charges on debt-burdened financial structures, the part depreciation charges might have played is traceable to the effect of these charges on financial structures.

A depreciation reserve accounting policy, had it been fully carried out in the past, would have meant at first sight merely an increase in credit items of the balance sheet. The real effect of these charges would have gone much farther, however, for charging depreciation to expense and crediting to reserve would have reduced net income, and would have forced the retention in business of funds otherwise probably disbursed in dividends. Or, conceivably, charging

[12] The telephone companies were curbed to some extent in this liberal policy by the Supreme Court decision in *Lindheimer et al v. Ill. Bell Tel. Co.*, *supra*, n. 5.

[13] In 1936 the new classifications of accounts of the National Association of Railroad and Public Utility Commissioners, applicable to gas and electric companies, defined "depreciation" substantially as has the Interstate Commerce Commission. Before 1936, however, the classifications provided for a retirement reserve. Under this plan no attempt is made to have the reserve reflect loss of service value. The reserve is determined by judgment and is used for charging retirement of certain large units of property where the loss involved would overburden operating expenses for any particular year. Even when the retirement reserve accounts were recommended, many state public utility commissions required depreciation reserve accounting.

depreciation might have made the railroads realize what their full operating costs were, and might have caused the railroads to make a more convincing fight for higher rates, when and where those rates could have been collected.

If depreciation charges had been made in sufficient amounts, it is not likely that funds arising therefrom would have been kept in cash or in the securities of other companies. In the first place, these funds could have been used for purchase of more operating assets. This accumulation of operating assets would have made it unnecessary during the development of the roads, even since 1914, to borrow as much capital through fixed-interest-bearing securities. This would have released some of the funds which now go for interest. In the second place, the railroads might have used the funds arising from depreciation charges for amortization of bonded indebtedness, with consequent diminution in fixed charges. In either case, railroad financial structures would have been put in better shape. That financial structure is important is apparent from an examination of the records of bankrupt carriers. With few exceptions these carriers were able to earn something before interest and dividends, even during the depression,[14] but they succumbed to the overpowering burden of interest-bearing debt.

Inadequate depreciation charges in the past, especially with regard to road and structures,[15] make it difficult for the railroads at present to retire property to the extent that they might otherwise have done. Depreciated property cannot be retired without taxing depreciation reserves, or, as is more likely in the case of road and structures, surplus. To make such retirements would probably be destructive of credit, a possibility railroads are loathe to face.

In spite of the soundness of depreciation reserve accounting, railroad executives are neither satisfied that such a system can be set up for the railroads now, nor that to do so is wise. At one point, serious question may be raised.

The depreciation policy of the Commission depends to a large extent, for purposes of accuracy, upon showing on the books of a railroad the approximately actual accrued depreciation at a certain date. The Commission has felt that it should not require the railroads to set up reserves at the present time for past depreciation for which no provision has been made. Not only did the Commission feel that this procedure might be illegal, but that the precarious credit position of the railroads made the move undesirable at the present time.

Depreciation accounting can hardly have the qualities of accuracy imputed to it by the Commission, unless the reserves on the books of the carriers actually approximate the depreciation loss existing in property. If this industry were a fast growing one, the significance of this discrepancy would constantly diminish. This is surely not the case, for, from all indications, the railroad industry is one which has gained its maturity and which cannot be expected to grow much in the future.

Without provision for past accrued depreciation, what remains of this depreciation reserve policy? If charges to depreciation expense and credits to reserve are no greater than currently accruing depreciation, a reserve even approximately reflecting accrued depre-

[14] Many of our best industrial corporations would have been glad to have had such a record.

[15] The statistical record of the Interstate Commerce Commission for 1934 shows that depreciation reserves for Class I railways averaged less than 13% of total investment in road and equipment. But reserves on equipment were 44% of the investment in equipment, while reserves on road were only 0.7% of investment in road.

ciation cannot be built up unless (1) current retirements are small; (2) replacements are at a much higher figure than retirements; (3) investment in property is expanding materially. For a composite aggregate of units, such as a railroad property, there is little reason to suspect that retirements will be noticeably smaller than current depreciation. Nor is there likelihood that replacements or additions will be at such a higher monetary figure as to step up the annual charge and result in accruing a large reserve.

If annual depreciation charges are made which are higher than current loss of service value, depreciation reserves will obviously increase. Whether this is done depends to a great degree on the pressure the Commission may put on railroads to make allowances at higher than normal rates, or upon the willingness of railroad executives and stockholders to do so, as well as upon the ability to collect higher charges from shippers. In any case, building up reserves would be a departure from the accounting principle that current depreciation charges to expense merely equal service loss incurred in a particular fiscal period.

Evidence exists in Supreme Court decisions which would seem to support the Commission in setting up reserves through a debit to a suspense account or to profit and loss, if that is merely an accounting measure, as the writer believes it to be. The Commission was supported in the Kansas City Southern case where accounting procedure was a point at issue. There the Supreme Court found nothing "arbitrary in the sense of being without a reasonable basis" in Commission regulation requiring cost of replacing abandoned property (less net salvage) to be charged to operating expenses, or authorizing such cost to be charged to a suspense account if the amount were so large as to unduly burden operating expenses, or requiring cost of property abandoned (less salvage) and not replaced to be charged to profit and loss.[16] If depreciation exists, it is really no different from property which has been abandoned. Why could the Commission not also require that that part of existing property which represents decline in value be retired from the accounts of the railroads by credits to a depreciation reserve and concurrent charges to a suspense account, or even to profit and loss?

Where the railroads have not been required to set up depreciation reserves and where, in many cases, rates have not been high enough to allow carriers to accrue reserves had they desired to do so, either because of Commission rate policy or for other reasons, to require past accrued depreciation to be set up now seems to be a "changing of the rules in the middle of the game." The question of equitable treatment cannot be passed over lightly. However, the extent to which setting up past depreciation unprovided for would affect the credit standing of individual roads is not clear. A change made for purposes of accounting accuracy would in fact take nothing from a railroad that it actually has and the fairly intelligent investor should not be affected greatly by such a change in his appraisal of the company.

As a matter of fact, many companies

[16] *Kansas City Southern Rwy. Co. v. U. S.*, 231 U.S. 423, 430-1, 447-8, 451-2, 456 (1913). While the Commission had required charges to be made to operating expenses in this case, the Court merely passed on the reasonableness of the Commission orders in respect to abandonments and found no "sufficient ground" to interfere with the particular order. For other pronouncements on the power of a commission over accounts, see *Norfolk and Western Rwy. v. U.S.*, 287 U.S. 134 (1932) and *American Tel. and Tel. Co. v. U. S.*, 81 Law. Ed. 116 (1936).

could charge the amount of past depreciation unprovided for to their profit and loss accounts and establish full depreciation reserves. For the railroads as a whole this could not be done without causing profit and loss deficits in many, if not most, cases.[17] In these cases, or in all cases, resort to a suspense account would save the appearance of the profit and loss accounts, at least temporarily.

Without the accuracy which the Commission imputes to depreciation reserve accounting, the worth of requiring the detailed work in many other respects is questionable. One must admit that a certain regularity in depreciation charges is gained, and that perhaps a fair reserve will be established. But so long as the problem of past depreciation is not dealt with, the reserve will be useful only as a retirement reserve.

Problems Involved in Calculating Depreciation Allowances

At several important points in respect to the calculation of depreciation allowances, a satisfactory solution has hardly been found. No wholly agreeable solution may be possible in some cases. In others, further investigation and study may show the way.

The railroads will surely experience difficulty in making service-life estimates which will cover reasonably predictable losses. When is a loss "reasonably predictable"? And will the Commission, if it desires uniformity, dare to leave the determination of predictability to the carriers? If the Commission does not allow the carrier to determine, can the Commission undertake enough research to prescribe service lives for all carriers, or even representative carriers in districts having much the same operating conditions?

The Commission has never laid down figures for service lives of railroad property or depreciation percentages for accounting for the annual charge. Prospective lives and service percentages were set up by the Commission in its valuation work, and many railroads have used these figures for accounting. But in the past the record has been none too good in respect to uniformity of depreciation charges. In putting the new plan into effect, the carriers must submit their estimates to the Commission for approval. But, unless these estimates are policed carefully, some of the advantages of depreciation charges will be lost. An estimate of service life is so uncertain that wide difference may occur. Where the differences are not justified, the resultant effect on the depreciation charge can do much toward influencing expenses and net income.

Charging removal cost of salvage to operating expenses rather than to gross salvage is not a very serious matter, even though it is inaccurate. However, with the present accounting classifications, the cost of recovering salvage is charged to the maintenance account for the particular asset, along with other maintenance expenses. Question may be raised as to whether it might be more desirable to segregate this cost so that one may know just how "negligible" this item is.

In some classes of property selected by the Commission, difficulties will be encountered. Such accounts as "rails," "ties," and "other track material" (including spikes, tie plates, crossings, etc.), because of the great number of

[17] Note that, as of December 31, 1934, all Class I railways had a profit and loss balance of $2,556,000,000; depreciation reserves of $2,467,000,000; and investment in road and equipment of $19,396,000,000 (I.C.C., *Statistics of Rwys., 1934*, p. S-88). Hence the profit and loss balance plus the depreciation reserves were more than 26% of the investment in road and equipment. Of the total reserves, the reserve for equipment alone was $2,362,000,000.

relatively small units involved, will not be adapted easily to depreciation accounting, even on a group basis. Moreover, several classes of property, clearly depreciable, were not included by the Commission for reasons of impracticability. As the depreciation plan is developed, and further study made, in spite of the difficulties involved, some accounting for service-value loss in most of these accounts should be attempted.

The requirement that all classes of property be depreciated by groups may need some modification in the future. Unit accounting is admittedly out of the question for classes of railroad property which include a great number of parts. Nevertheless, much of the property in some of the primary accounts (by which the groups are classified) is so dissimilar as to warrant a type of unit treatment. The primary accounts themselves are often fairly general in scope. An average rate checked by statistics on primary accounts would be inadequate in many instances. For the calculation of such a rate, better results might be obtained by keeping depreciation data by units. Such primary accounts are "bridges, trestles and culverts," "station and office buildings," "power dams, canals and pipe lines," "shop machinery," and "power plant machinery."

The railroads will probably experience difficulty in breaking down asset accounts so that a ledger-cost basis can be used for depreciation. In many cases, ledger costs are not detailed enough to be used as the base for depreciation calculation. Even if the Commission allows the carriers to use the valuation bureau's figures, changes in the carriers' books will be rather difficult and will necessitate close inspection by the Commission.

A further matter which can hardly be called solved is the depreciation base. Whether or not original cost or ledger cost will prove either legally or financially adequate in the future is a question. If price levels should continue for some time their upward trend, a cost base might not be high enough to represent the real value of property depreciating. Should the fear of some bankers and economists, that rampant inflation is approaching, be realized, the depreciation base prescribed in the Commission's accounting system might well have to be altered.[18]

It is not at all certain that equal annual charges for the depreciation of a unit or a group of units are in accord with facts. Where use is the primary factor, equal charges may not represent the depreciation loss allocable to the various fiscal periods. Where this is true, employing a use basis instead of a time basis in calculating the depreciation charge may be perfectly justified. Moreover, railroad managements have favored some such method as would introduce a certain flexibility in annual depreciation charges. Where the use basis is applicable, this flexibility may be gained without sacrificing facts. To be sure, the Commission has said that a plan of this sort might be introduced, if it seemed warranted. Very little research has been done on this score by either the railroads or the Commission, and one does not know what the possibilities of use-units are. One railroad did attempt to work out a plan of this kind, but after one year the Commission refused to allow further accounting on that basis, because it felt that the

[18] For further discussion of the depreciation base as prescribed, see an earlier article by the writer, "The Depreciation Base in Railroad Accounting," 13 *Journal of Land & Public Utility Economics* 1-13 (February, 1937).

charges resulting were too low.[19] It does seem that further study of this basis of calculation might profitably be made.[20]

Use of Depreciation Funds

The Commission has not indicated what use should be made of the funds made available by depreciation charges on assets in way and structures accounts. Obviously, a great part of the funds will be used to buy assets which are now charged to operations as maintenance cost.[21] But for any surplus of funds, the Commission would do well to bring pressure to bear for the amortization of bonded indebtedness. If the charges for depreciation are no higher than current retirements, little advantage would be gained from depreciation reserve accounting over a simple replacement or retirement method, except, perhaps, to show more accurately the extent of deferred maintenance. This is especially true where past depreciation has not been set up in full on the books. If depreciation charges are higher than retirement charges, the Commission faces the problem of how the funds thus made available can be used to better railroad financial well-being. Where the railroads have loans with the Reconstruction Finance Corporation, and in case these loans are renewed, influence may be brought to force the use of any funds, arising from depreciation charges, to improve railroad financial structure. Since this method can reach only relatively few railroads, other means should be devised. If depreciation charges are no higher than retirement charges, however, the Commission will certainly have to face the problem of making depreciation accounting more valuable to the carriers.

Cooperation of Railroad Management

Some of the most important difficulties in the Commission's extension of depreciation accounting regulation lie outside the plan itself. In the first place, it will certainly not be an easy matter to familiarize railroad accountants with this extension, nor will it be easy to get them to cooperate whole-heartedly with the Commission. Railroad accountants, for the most part, resist change in accounting policy or technique, and they have particularly opposed the extension of depreciation reserve accounting.

Moreover, railroad management is not sympathetic with the Commission depreciation plan. They may not offer strong resistance, nor are they likely to take a very aggressive interest in it. They may even do a fairly good job in attempting to meet the requirements laid down for them. But their lack of interest may mean that really effective cooperation and research will not be forthcoming.

The proposed extension of depreciation reserve accounting to road and structures has seemed to many executives to be an unfair move. To force on a mature industry a revolutionary accounting change at the very time many roads are struggling for financial existence does seem in some ways to be inequitable treatment. This point of view is given added weight by the fact

[19] In 1934, the Commission refused to allow the New York Central Railroad to accrue its depreciation on equipment on a mileage basis longer than one year. See *New York Times*, April 20, 1934, p. 35.

[20] Prior to 1924, use-units were employed by the Swiss Federal Railways on some depreciation accounts. See Fallet, E. M., *L'Amortissement Industriel dans Les Compagnies de Chemin de Fer* (Neauveville: W. Henry, 1933), p. 156.

[21] Or, which amounts to the same thing, the retirements would be credited to the asset account and charged to reserve, and the replacing asset charged to an asset account for it, and cash credited. In so far as the retirement amount and the replacement amount are nearly the same, the practical result is to use funds to buy assets which, under a replacement scheme, are charged to operations as maintenance cost.

that the Commission until recently has not particularly encouraged the extension of depreciation accounting.[22]

Some grounds for charging inequitable treatment of the carriers lie in the rather niggardly rate policy of the Commission itself and of the recapture and rate-of-return provisions of the Transportation Act of 1920. Throughout the high price period during the World War, and immediately after, the railroads in general were not allowed to earn anything like a fair return, after reasonably adequate operating expenses, for an industry subject much as any other to the hazards of the business cycle. Had higher rates been allowed at a time when they might have been collected, the extension of depreciation reserve accounting would have seemed much more fair, even if the higher return had been distributed as dividends by an improvident management.

Nevertheless, the carriers are not without fault in being unable to meet this change in accounting policy easily. In the first place, the railroads should have "read the handwriting on the wall" as early as 1914.[23] The prescription of mandatory accounting for equipment as well as the fast growing practice of accruing reserves in general industrial accounting, should have given the carriers some indication of future Commission policy.

Second, the carriers lost an opportunity to argue for higher freight and passenger rates in 1911, and later, by not admitting the wisdom of depreciation reserve accounting and putting such a system into effect. The only explanation for the carriers' refusal to extend depreciation reserve accounting at that time and later lies in their untenable valuation position. The carriers were arguing against deduction of accrued depreciation in valuation on the grounds that, where property was efficiently maintained, no loss of value could exist. At the same time, they could not consistently argue for higher rates caused by depreciation charges in excess of current maintenance costs.

A third point which makes the Commission's action seem more equitable lies in the railroad companies' refusal to cooperate with the Commission in the depreciation hearings of 1923 to 1931. The railroads offered hundreds of pages of testimony, but, with few exceptions, this testimony was directed toward upsetting the Commission's plan to extend the scope of depreciation accounting. Because the railroad testimony showed a lack of research in regard to depreciation, the Commission was forced to rely largely upon the research of the telephone companies, a study not entirely applicable to the railroad problem.

The Problem of Railroad Revenues

One of the greatest practical difficulties outside of the Commission's plan is presented by the problem of railroad revenues. Even though railroad revenues have recently been staging an encouraging revival, will these revenues stand the charging of depreciation at a higher rate than ordinary replacement costs, especially in the face of increased charges for maintenance which had been deferred after 1930? If high charges are made for depreciation, the pressure may be

[22] In the rate division cases of *Sewell Valley R.R. Co. v. Ches. and Ohio Rwy. Co.*, 87 I.C.C. 21, 24 (1924) and *Okla.-Southwestern Rwy. Co. v. St. Louis-San Francisco Rwy. Co.*, 88 I.C.C. 235, 243 (1924), the Commission disallowed depreciation expenses for way and structures as being made in practice "only in exceptional instances."

[23] Indeed, if not in 1907 when the Commission first announced its plan, or in 1909 when, in the case of *Knoxville v. Knoxville Water Co.*, 212 U.S. 1, 13-14, the Supreme Court said that not only is a public utility "entitled" to make provision for depreciation, but it is its "duty" to investors and consumers.

so great as to make for important reduction in net income, thereby hampering the credit position of an industry already none too stable financially.

With the present competitive condition, and with some doubt as to whether certain railroad traffic could "bear" higher rates, can the railroads collect enough revenue to enable themselves to make adequate depreciation charges? This aspect of the railroad future is made even more uncertain by the present need for cash outlays to make up deferred maintenance and to make improvements in rail facilities in accordance with new transport ideas, as well as by the present tendency of costs of operation to increase.

So far as the competition of other transport services is concerned, if the interests of society in transportation service demand higher rail rates, the rates of competitors with steam railroads might possibly be controlled better to make higher rail rates possible. Or, perhaps improved service and more aggressive management can return much traffic to the rails. The return of prosperity should give the railroads an opportunity to get an increasing share of transport business. Although perhaps politically inexpedient, it might be good business policy to shunt some of the government subsidies from water and air carriers to the rails, if the government finds it in the public interest to subsidize transportation.

Moreover, if financial structures are so burdened with debt that interest payments can be met only by slighting depreciation charges, further reorganization might as well be undertaken now. In the process of reorganization, many underlying mortgages on relatively unproductive property might be reduced so that profitable railroad property need not bear as much of this burden as is the case at the present time.

Depreciation Accounting and the Future

It is not improbable that some answer to these unsolved problems can be found in the extension of research in depreciation. The railroad companies themselves have not investigated the field of depreciation to the extent that the importance of the subject justifies. Destructive criticism and lack of cooperation by railroad managements and accountants will not deter the Commission from prescribing a thoroughgoing depreciation reserve policy, for such policy is not only financially sound, but is well intrenched in business and accounting practice. Railroad managements and accountants would act wisely if they should accept the basic tenets of the Commission's policy. Then with research and experimentation they would do well to cooperate with the Commission in solving the difficulties in depreciation accounting in ways favorable to railroad administration and in line with efficient and economic transport service.

Even after long study, the Commission has admittedly left many matters which need further investigation. Some problems may be solved rather easily. Others, more difficult, are of such a fundamental nature as basically to affect the general policy of depreciation reserve accounting. In some cases the Commission may be able to find a solution. But the real success of depreciation accounting for the railroads depends very much upon the attitude of railroad management. Faced with many apparently larger and more immediate problems, they may not see the real significance of depreciation accounting. Far more than a detail of accounting practice, depreciation reserve accounting involves a sound financial policy well worth aggressive consideration.

Liquidating Town Government in Decadent Rural Areas of Maine

By O. J. SCOVILLE*

PRINTED on a bill introduced in the 1937 session of the Maine Legislature is the following "statement of fact:"

"Mayfield Plantation was organized July 5, 1892. At that time there were about 75 people living there, but conditions have changed so that at the present time there are only two legal residents. It would seem impracticable to try to continue the organization any longer."

This bill, entitled "An Act to Provide for the Surrender by Mayfield Plantation of Its Organization,"[1] was designed to put an end to this absurdly small unit of local government.

During the 1937 session of the Maine Legislature, seven towns and plantations sought relief from their responsibilities through disorganization, and a number of towns have been dissolved by previous legislatures. The 1935 session of the Legislature disorganized four towns and one plantation, and one plantation gave up its organization in 1933. Of the four towns, three have subsequently adopted the somewhat more simplified form of "plantation" organization; the other town and the two plantations have reverted to "wild land."

Maine's System of Local Government Facilitates Town Disorganization

Maine's variegated local government system has no doubt facilitated town disorganization. Forty percent of the area of the State has never been organized into local units of government and is administered by the State. Hence, a convenient yardstick is at hand to demonstrate the relative efficiency of state versus local administration and, what is more important, since the state and counties are already engaged in supplying this large area with schools, roads, police and fire protection and the like, towns can disorganize with the knowledge that an organization, capable of taking over administration of their affairs, already exists.

This state-administered "unorganized territory," although it contains 40% of the area of the State, contains a population of only about 7,000 people, some of whom live in small communities but many of whom are isolated. The problems of government in such an area are obviously far different from those found in most New England towns. The situation is more comparable to that found in sparsely settled parts of the West (Map I).

In addition to the unorganized territory and the organized towns[2] Maine has an intermediate form of organization, designated as the "plantation." These vary considerably in their organization. In size they are generally identical with the towns, that is, about 36 square miles in area. Some are practically identical with the town in organization, electing the same officers[3] and carrying out the same functions. Others

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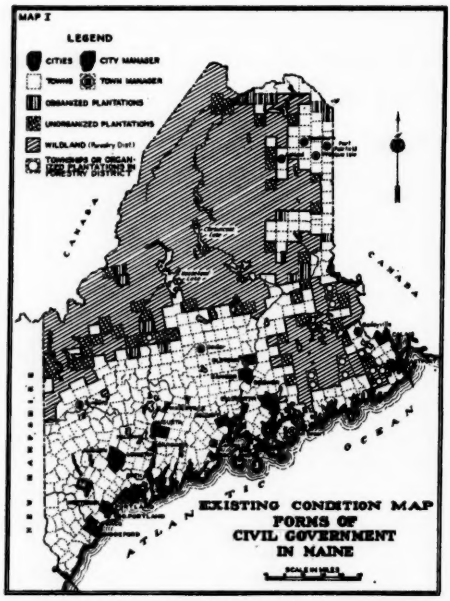
[1] Legislative Doc. No. 178, 1937.

[2] The term "town" is used in Maine to denote the organized unit of local government. The term "township" is applied to the surveyors' unit, usually six miles square.

[3] Except that in plantations there is a board of assessors in place of the "selectmen" who perform the same functions for the town.



Prepared by the Maine State Planning Board from data from the Maine State Board of Equalization.

are rudimentary, being organized principally for maintenance of schools. Others exist whose organization is somewhere in between. Plantations are classified as "organized" and as "wild land" plantations. The distinction is not clear-cut, but lies in the procedure by which they were established.[4] The "organized" plantations are generally quite similar in organization to the towns; the "wild land" plantations differ from organized plantations in that they are generally not required to pay state and county taxes. However, as with most any general statement one might make in regard to local government in Maine, there are exceptions to the rule, and wild land plantations may, by special order of the Legislature, be required to pay such taxes.

The relative importance of the different categories of local government in Maine is shown by the tables below. From Table I it appears that, although the towns, cities and plantations account for only 60% of the area of the State, they embrace 99% of the population and 99½% of the farms. Why the unorganized territory has never been incorporated is obvious. It is practically an unpopulated wilderness.

When the distribution of population among the various types of organized government is compared, it is noted that 36.5% of the State's total live within cities; 60.5% in towns; 1% in organized plantations; and only ½ of 1% in wild land plantations. Yet the area of the State is distributed as follows: cities, 2%; towns, 50%; organized plantations, 2%; and wild land plantations, 6%. These tables emphasize the fact that, from all standpoints except area, the unorganized and partially

[4] Organized plantations are those established under Rev. Stats., c. 5, § 193 (1930). Wild land plantations are those which were established under § 194 of the same statute.

TABLE I. LAND AREA, POPULATION, AND NUMBER OF FARMS INCLUDED IN THE DIFFERENT TYPES OF LOCAL GOVERNMENT

	Number (Jan. 1, 1935)	Area (Sq. Miles)	Population (1930)	No. of Farms (1935)
Cities	20	594	292,793	2,344
Towns	434	15,324	484,401	38,016
Organized plantations	22	674	8,364	841
Wild land plantations	41	1,711	4,682	499
Townships	392	12,768	7,183	207
Total	909	31,071*	797,423	41,907

*The commonly accepted figure for total land area of the State does not exactly agree with the sum total of the areas under the different forms of local government.

organized units of government in Maine are of far less importance than the standard form of city or town.

A comparison of the rates of taxation under the different jurisdictions is also of interest (Table II). Towns and organized plantations have the highest rates, followed by cities, whose lower rate may be caused by differences in assessment. The wild land plantations have a rate only about 10 mills lower than that of towns and organized plantations. This is approximately the combined average state and county rate and, hence, it appears that the simplified organization of wild land plantations has not materially cheapened the cost of total government. However, the unorganized territory enjoys a remarkably low rate of taxation, about 12 mills for all purposes, including a 2¼ mill levy for forest fire protection which towns and plantations do not have to pay.

Although the unorganized territory contains only 1% of the population and ½ of 1% of the farms of the State, it has been more fortunate in the matter of tax resources; 7½% of the State's taxable wealth is within this area. Hence, in terms of tax resources per capita, the unorganized territory is about seven times as well off as the remainder of the State.

Table II also shows the valuation of resident and non-resident property for each type of local government. It will be noted that the proportion of all property which is owned by non-residents increases progressively from the most highly organized unit, the city, to the least highly organized, the wild land plantation. Non-resident ownership, amounting to only 17% of the value of city property, becomes ⅓ the value of property in towns, slightly over ½ in organized plantations, and 90% of the value in wild land plantations.[5]

This characteristic is of great significance to the management of local affairs. As non-resident ownership increases in importance, the town-meeting form of government becomes less responsible to the interests of property owners, and in some cases it is perverted in such a way as to exploit non-resident taxpayers.

Disorganization an Aftermath of Economic Change

Disorganization of local government in Maine began something over 50 years ago, and some 13 towns and plantations have reverted to the status of "unorganized" or "wild land" territory during this time[5a]. A considerable num-

[5] The proportion in the unorganized territory is not available.

[5a] Not counting those now in the process of being disorganized.

TABLE II. DISTRIBUTION OF ASSESSED VALUATION ACCORDING TO TYPE OF LOCAL GOVERNMENT, AND AVERAGE TAX RATE UNDER EACH

	Assessed Valuation, 1934*			Average Tax Rate† (1934)
	Total	Resident	Non-Resident	
Cities	$274,090,209	$228,260,281	$ 43,829,928	.046
Towns	305,867,379	194,732,765	111,134,614	.055
Organized plantations	2,983,872	1,481,787	1,502,085	.058
Wild land plantations	8,028,587	737,797	7,290,790	.045
Unorganized territory	47,875,616	‡	‡	.012

*Assessed valuations here given for towns and plantations are "local" rather than "equalized" valuations.
†Simple average.
‡Not reported.

ber of towns have shifted to the plantation status during the same period.

Obviously, Yankee communities are not abandoning their right to govern themselves without good reason. Furthermore, the movement to disorganize towns does not mean that the citizens feel that town government as an institution has become obsolete. The only towns in which disorganization is being considered are those in which changed economic conditions, resulting in a declining population, isolated settlement, and dwindling taxable resources, have made the burden of local government intolerable. In Maine, as in most of the northeastern states, agriculture has been forced to readjust itself many times. Industries which formerly gave farmers a market or an opportunity for part-time work have become obsolete, as in the case of the building of wooden ships or the production of tanbark; others, such as lumbering, which at one time provided a good market for hay and the opportunity for winter employment to many farmers, have declined in importance. The proximity to industrial centers has induced many rural people to abandon their farms for work in the mills. The opening of the West and the development of transportation have forced many a small and stony New England farm below the margin for profitable cultivation.

The result of all these many forces has been a decline in the number of farms and in farm acreage, as well as an exodus of population from decadent rural areas. Farm abandonment has been a widespread condition in Maine, as in most of the northeastern states, for many years. It began in Maine shortly after 1880, and the number of farms and the acreage of farm land have followed a downward trend since that time. Since 1880 one farm out of three has been abandoned, and one farm acre out of every four.[6]

In most Maine towns in which farm abandonment has been heavy, population has also declined. This situation is commonly true along the coast and in the fringe of agricultural settlement near the woods. The problem of maintaining town government has become acute in such areas. A small population means expensive and inefficient government and a multitude of office holders. According to the 1930 *Census* there are 13 towns and plantations in Maine which had populations of 50 inhabitants or less.[7] Yet each of these had a full staff of officials, numbering 6 to 12. Some of these officials hold more than one job, and the total number of offices in these small towns is about 14 or 15 per town. Altogether these towns employed 118 officials, holding 173 offices, to govern a total population of about 500. Town officials include assessors or selectmen, tax collectors, town clerks, treasurers, road commissioners, health officers, constables, school committees, and school teachers. The minor town officers, such as fence viewers, sealers of weights and measures, pound keepers and the like, which are no longer elected in many towns, have been omitted from this tabulation.

Many of the modern functions of government cannot be performed efficiently unless they are conducted on a reasonably large scale. A small population means high unit costs. Furthermore, a small population generally is associated with low population density per square mile. A few people are dis-

[6] It should not be inferred from such statistics that Maine is going out of the farming business. During the past 50 years the total real value of annual farm production in the State has almost trebled.

[7] The smallest had 21 inhabitants in 1920, and was not reported separately in 1930.

tributed over a large area in such a way that the cost of roads and schools per capita becomes very high. Out of a representative group of Maine rural schools examined in 1932, those having an attendance of five pupils or less per school were operated at a cost of $232 for each pupil, while those which had more than 20 pupils enrolled cost only ¼ as much per pupil, or $61.[8] This illustrates the social cost of isolated settlement. The maintenance of roads likewise is expensive in areas which are but sparsely populated, because of the excessive mileage per family served. The fact that an area has at one time been more thickly settled makes the problem of local government finance still more difficult. A pattern of occupancy and a road and school system have been established, and when farms are abandoned the man at the end of the road may not be the first to go. Consequently, the tax base and the number of taxpayers may shrink markedly without changing the number of miles of roads or the number of schools that must be maintained.

Towns in the decadent rural areas of Maine, their difficulties aggravated by the economic depression, are facing a serious situation. As population has declined, the acreage of idle and abandoned land has increased, and taxable wealth has dwindled. As a result, tax rates have risen. In one town the rate is 140 mills per dollar, or 14% of the value of taxable property; in 27 towns the tax rate exceeds 80 mills.[9] The 1935 *Report* of the state auditor estimated that about 50 towns in the State were "practically bankrupt."

These are the reasons why a considerable number of Maine communities are beginning to seek better ways of administering the functions of modern local government. Why they have chosen such a drastic method as disorganization is explained partly by the seriousness of their financial condition and partly by the precedent and incentive for such action to be found in the State's peculiar local-government system.

The Procedure of Town Disorganization

As mentioned above, town disorganization may involve a change from town to plantation status, or it may involve complete dissolution. If a town decides to change from the town form of government into a plantation and if it has an assessed valuation of less than $100,000 and a population of less than 200, it is able to shift its burden for pauper relief from its own shoulders to the State; this represents a real saving to the local people, since in many towns in the poorer areas, poor relief amounts to about 20% of total town expenditures.

The procedure in disorganization is as follows: (1) the town petitions the Legislature for permission to surrender its charter; (2) the Legislature passes an act permitting the town to disorganize (separate acts are required for each town or plantation); (3) in some cases the legislative act must be approved by a referendum vote of the town; (4) towns, if they so desire, may reorganize as plantations, or remain disorganized;[10] (5) a skeleton organization remains for the purpose of liquidating past indebtedness of the town.

The legislative acts providing for disorganization differ from town to town in a few details; some provide for a referendum, some do not. The "Act to Provide for the Surrender, by Town

[8] U. S. Dept. of Interior, Office of Education, *Bulletin* 3, 1934, p. 13.

[9] *Report*, State Assessor, 1934-5.

[10] The law provides that all wild land townships having in excess of 200 inhabitants must become organized either as towns or plantations, but this is not strictly observed.

of Kingman, of its Organization,"[11] illustrates the usual procedure.

"Be it enacted by the People of the State of Maine, as follows:

"Sec. 1. Organization of town of Kingman may be surrendered. The organization of the town of Kingman in Penobscot County as heretofore adopted is hereby surrendered; provided, however, that the corporate existence, powers, duties and liabilities of said town shall survive for the purpose of prosecuting and defending all pending suits and causes of suits to which said town is, or may be, a party and all needful process growing out of the same, including provisions for the payment of all or any judgments or debts which may be rendered against such town or exist in favor of any creditor.

"Sec. 2. School fund and unexpended funds. The school fund deposited to the credit of said town and all funds unexpended for school purposes at the time when this act becomes effective out of amounts paid by the state for school purposes shall be paid by the treasurer of said town or such other person in whose custody such funds may be, to the treasurer of the state. Such amounts, so received, shall be added to the unorganized township funds as provided in section 23 of chapter 11 of the revised statutes.

"Sec. 3. Effective date of act. This act shall take effect when approved but shall not become operative until it has been approved by said town of Kingman at a special town meeting called for that purpose by an appropriate article inserted in the call for said meeting, and held prior to April 15, 1935, and notice of such approval if voted by the said town of Kingman, in the form of a certified copy of the record of such meeting shall be filed with the secretary of state." (Approved March 22, 1935.)

When a town becomes disorganized the town paupers become state charges and are cared for by the State Department of Health and Welfare. Education becomes a function of the State Commissioner of Education, who has a special department for administering unorganized territories, with authority either to maintain schools or transport the children to near-by towns, or provide for boarding the children near some school. This Department has developed what seems to be a very efficient administration of education in the sparsely settled unorganized territory. It even has one portable school, which is used in the northern part of the State and can be moved to wherever the majority of the scholars happen to be.

Roads and highways, police protection, and the like in the disorganized territory become the responsibility of the state and the counties. Citizens in the unorganized territory go to adjacent towns or plantations to vote at national, state, or county elections.

The advantages of state administration are evident from the remarkably low rate of taxation in the unorganized territory. Yet it appears that this territory is more than self-supporting. In 1930 it paid to the State in taxes $812,000, and cost, exclusive of state highways and state-aid highways, $385,000 for administration.[12] Although the unorganized territory does not enjoy services equal to those provided by the more prosperous towns, its services are equal or superior to those which most of the poorer towns are able to provide.

However, town disorganization may not prove to reduce the cost of government to any such degree as these figures indicate. It must be borne in mind that, whereas most of the unorganized territory is unsettled, with few demands for roads and schools in proportion to its area and taxable wealth, the submarginal towns which are surrendering their charters contain a considerable population, served by a network of roads and

[11] Priv. and Spec. Laws, 1935, c. 38.

[12] "Forest Taxation in the United States", U.S.D.A., *Misc. Pub.* 218, Washington, D.C., 1936, p. 296.

numerous schools, and further burdened by pauperism. The transfer of the functions of local government to state jurisdiction presents an opportunity for land-use planning. The state, in such cases, is in much the same position as a receiver in bankruptcy, and is faced with the problem of reorganizing road, school and relief systems, a problem that is intimately associated with the pattern of land use and occupancy. Here should be an opportunity to test the efficiency of land classification and zoning, public land purchase, and settler relocation.

Town disorganization does not answer all problems of local government. Although it makes possible a saving in public expense, coupled with somewhat better services, it possesses a number of objectionable features. Purely local affairs cannot be administered with complete satisfaction by state officials. It would seem better to leave some to the supervision of the county, but that unit in Maine is not adequately equipped or empowered to handle local governmental affairs. Furthermore, many counties are too large and too awkwardly shaped to be efficient administrators of local government. (Piscataquis County, for example, is 4/5 the size of the State of Connecticut.)

Perhaps one solution might be to permit towns, after disorganizing, to recombine into geographically larger units, of say four to eight townships. This procedure might be simpler than the mere consolidation of towns, without disorganization, since it would provide for an initial process of disorganization and liquidation of debt, after which the local citizens might find it easier to get together in organizing a new town.

Another step which might improve the process of town reorganization would be to define the plantation more clearly, and make it serve definitely as a transitional unit between town and unorganized territory. Standards might be set up for the area, population, and functions of the plantation, which would make it useful in those areas where town government cannot be economically maintained, but where there are too many people to make state administration entirely satisfactory.

It is likely that the movement to disorganize towns will continue in Maine for a number of years. This will not mean wholesale disorganization. Probably not more than 30 or 40 towns and plantations will be completely dissolved during the next 10 or 15 years, although twice that number may shift from town to plantation status. There is no indication that the organization of the more populous towns will undergo any great change in the near future.

Town disorganization will no doubt be followed by some decrease in the cost of local government, but to obtain any great saving it will be necessary also to effect some reorganization of present land use and occupancy.

Residential Rate Reductions and Recovery in Small Communities

By EDWIN VENNARD*

THE importance of residential electric service both to the consuming public and to the electric utilities makes it advisable that residential rates be given careful and continuous attention. Electric utilities are charged with a public interest because of the inherently monopolistic nature of the business and because of the part that electricity plays in promoting the general welfare. Residential rates must recognize the obligation.

Residential service is the backbone of the business, especially in small, non-industrial communities. It constitutes a large part of total revenue and is least affected by economic cycles. This stability has been largely responsible for enabling the utilities to pass through the recent depression without the many bankruptcies and failures incident to other businesses. Residential rates must be adequate.

In the design of residential rates to protect the interests of all parties, certain fundamental principles are considered. First, residential rates should be high enough (but only high enough) to cover the costs of furnishing the service including only a fair return on a fair property value, with allowance for a reasonably balanced division of the diversity benefits with respect to the various classes of service. Second, rates should be competitive, promotional, standard in form, salable, simple, readily understandable in design, and reasonably non-discriminatory.

In the practical application of these factors, naturally certain compromises are necessary. It is believed, however, that a conscientious consideration of all these principles meets the needs of all concerned. From time to time new principles or new interpretations of old principles are advanced in residential rate design. Many of these new ideas have merit. They should be examined with an open mind and tried where advisable in order that rates may be kept modern and always in the public interest.

The purpose here will be to mention a few of these new ideas to determine wherein and to what extent public interest requires their consideration and wherein they may be faulty. A few studies and analyses will then be presented that may contribute toward a better understanding of the problem.

Customer's Ability to Pay

To a certain extent the customer's ability to pay is already being considered in rate design and this should continue. For example, on the basis of direct allocation of costs, the rate to the small user is below the cost curve, although above the incremental cost of furnishing the service. Smaller users of residential service as a rule are less able to pay than larger users.

This does not mean, however, that all residential customers are any less able to pay their share as a class than are, for example, commercial or industrial customers. The owners, operators, and employees of commercial and industrial establishments live in residences. Business organizations have no greater ability to pay than individuals. The revenue to a business enterprise must

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come through the commodity which it sells to the consumer. The retail price of the commodity includes all elements of expense, including electricity, incident to the operation of the business. Likewise, electric utilities have no revenue except that obtained from the consumers. If rates to one class of electric consumers are below cost, rates to some other class must be correspondingly above cost. It is not necessarily in the public interest to charge residential electric customers a price below cost and then charge commercial and industrial electric customers a correspondingly higher price when these business establishments must add the additional price to the cost of the commodity sold the consumer.[1]

General or Social Welfare

Electricity contributes to the general welfare in the sense that it plays a part in raising the general standard of living in the home. Residential rates should be made as low as consistent with good business so as to allow, encourage, and promote generous use of electricity.

Use of electricity to promote the general welfare, however, does not mean that residential service should be subsidized at the expense of some other class or that residential rates should go below the cost of furnishing the service. Electric utilities could not long continue selling such a large part of the business at a loss.

Low, promotional rates will encourage the widespread use of electricity that the public wants. If these rates are below cost, however, the company's rate of return will be permanently lowered, credit will be impaired, and it will be impossible to attract low-interest-rate money to build the facilities to deliver the additional electricity that low rates promote. Such rates are not in the public interest.

Reduce Rates to Increase Use

In recent years much has been said and written about decreasing rates as a means of increasing use of electricity. This is not a new principle although it has been given a new interpretation.

It has long been recognized that improperly designed rates could be improved in form and reduced with resultant benefits to both consumer and company. This does not mean, however, that the process should or must be a continuous one as there is a bottom limit to all rates. Once the rate is set below that level, the use may increase but the per cent return on investment will decrease.

These various influences have caused some confusion with respect to residential rate reductions and recovery. Certain popular beliefs relative to the effect of rate reductions on revenue have become fairly well crystallized in the mind of the public. Four of these beliefs will now be discussed. The questions are: (1) Can rate schedules always be reduced as use increases? (2) Will decreased rates always produce increased revenue? (3) Should rates be at the same level regardless of the size of the communities? (4) Does recovery in gross revenue result in complete recovery from rate reductions?

I. Can Rate Schedules Always be Reduced as Use Increases?

In speaking of rate reductions it is well to differentiate clearly between a "rate schedule" and an "average rate." The single term, "rate," is often used

[1] This should not be interpreted as meaning that residential class rates should be as high as commercial class rates for similar individual customer use. Residential service as a class has a better load factor and diversity and consequently should have a lower class rate from the standpoint of cost of furnishing the service.

in both instances. By "rate schedule" is meant the complete schedule, such as 8c each for the first 25 kilowatt-hours used a month; 5c each for the next 25 kilowatt-hours used a month; 2.5c each for all additional use.

By "average rate" is meant the average price of a kilowatt-hour for any particular use under the rate schedule. For example, the above rate schedule will result in an average rate of 6.5c for 50 kilowatt-hours, 4.5c for 100 kilowatt-hours, 3c for 400 kilowatt-hours.

There is a current popular belief that the rate *schedule* should be reduced for all increased use of service and that this schedule can always be reduced as use increases.

Average rates can be reduced for two principal reasons—namely, (1) because of increased use of service, and (2) because of increased operating efficiencies resulting in lower operating costs, and thus a reduced *schedule*.

In the early years of the utility industry reductions in rate *schedules* were made for both of these reasons. Later, as more experience was gained in promotional rates, it was found that the rate schedule could be designed to provide automatically the necessary decrease in average rate for increased use as illustrated in the above example. Where the rate schedule is so designed, the first reason largely disappears as a logical one for further reductions in such *schedules*.

Much has been written about the phenomenal decreases in residential rates. The reductions have been substantial and consistent throughout the life of the industry, with the possible exception of a short period during the World War. The public has become accustomed to this periodic reduction. This habit grew with the development in the art of making electricity as economies were realized in power-plant and transmission-line operation. The resultant savings brought about by increased operating efficiencies were passed on to the public.

Conditions today with respect to rates and increased operating efficiencies are somewhat different than in former years. The industry is not experiencing the same decreases in operating costs. Operating efficiencies, while continuing, are not doing so to the same extent as in the early stages of development. Many expenses such as taxes, labor, and material costs are increasing. Rate reductions from now on cannot be justified on the basis of increased operating efficiencies to the same extent as in the past.

The answer to the question, "Can rate schedules always be reduced as the use increases?", can best be obtained from a cost analysis that will show the cost of furnishing residential electric service over the whole range of customer use. Such analyses are necessary as standard utility accounting practices do not show the total cost of furnishing service to any particular class nor do they show the per cent return on the investment for any particular class of service. The expense of keeping such records currently would be too great to be justified. Consequently, the only means of determining the return by classes is through a cost analysis in which the various investments and expenses are duly allocated. Such analyses are limited in their usefulness, as, for example, they should not be used in a rate case in definitely establishing a certain rate level. Engineers would have honest differences of opinion with respect to certain allocations. Also the property as a whole should be considered in a rate case. Even with the differences of opinion, however, the analyses are probably correct within about 10% and

can serve a valuable purpose as guides in establishing rate levels. Reasonable variation from the overall rate of return should be allowed with respect to each class of service. The cost anaylses will show if any class is unreasonably out of line.

Cost analyses of residence service have been made by a number of representative companies in the Middle West system. These analyses result in the determination of (1) cost curves based on present use of service, and (2) ultimate cost curves.

The first cost curve is fairly simple to determine. Present investments and expenses are merely allocated to the respective classes of service giving each equal share for the benefit of diversity.

The ultimate cost curve is somewhat more complicated in its determination but can be calculated almost as accurately. To determine this cost, residential service is assumed to have its ultimate saturation in major appliances, such as 70%—refrigerators; 50%—ranges; 40%—water heaters. To this is added the estimated increased use for lighting and small appliances.

To provide service for these appliances placed on the system at random, adequate additions are made for distribution, transformation, and power pool investment as well as suitable additions to operating costs and revenue. The cost curve is then calculated based on these new conditions of ultimate saturation or ultimate use of residential service. That cost curve based on a 7% return on the investment and 3% for retirement may well be considered the ultimate bottom in residential rates, at least until such time as a new and cheaper way is found for making and delivering electricity. Usually this ultimate cost curve is slightly less than the cost curve under present use, especially if the company analyzed has a present condition of excess capacity. In the cases used for illustration here the ultimate cost curves were not materially different from the present cost curve. If a rate schedule is designed to coincide exactly with this ultimate cost curve, such a rate will result in only a 7% return regardless of how much the customers increase their use, since the schedule would be designed to result in this return for the whole range of customer use. Obviously, any rate that goes below this ultimate cost curve would never earn a 7% return regardless of how much sales were increased. If any rate schedule goes below that cost curve, it means the more service the company sells the more its rate of return is permanently lowered.

The principal value to the operating companies of this type of analysis is the location of that bottom limit so that they may flag it and avoid adoption of the lower-rate-of-return policy without knowing it until it is too late.

The question of whether the rate schedule can always be decreased as use increases depends, therefore, upon the relation between the rate and the cost curve.

An examination of a few of these cost curves will illustrate the point. Chart I shows the history of rate reductions from 1923 through 1936 and likewise shows the residential cost curve of Community A[2]. It will be noted that modern rates more closely follow the cost curve than earlier rates. Note particularly the "Full-Use" rate.

The present rate schedule in Community A crosses the cost curve at about 35 kilowatt-hours a month. Customers using less than 35 kilowatt-hours are

[2] The examples used in this discussion are all small communities which are part of a system serving thinly populated and rural areas.

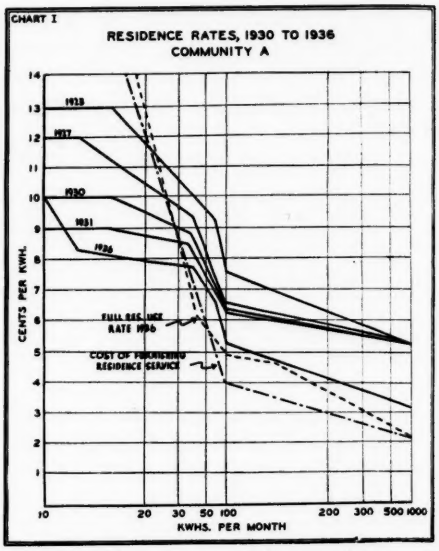
served below cost; customers using more than 35 kilowatt-hours are paying something above cost. In this particular case, about 65% of the customers use less than 35 kilowatt-hours a month. Customers using more than 35 kilowatt-hours must continue to pay something more than cost to make up for those customers using less than 35 kilowatt-hours if the company is to average a fair return for all use. This does not mean that the company would be better off without those customers using less than 35 kilowatt-hours, as the rate for such customers probably covers the incremental costs of furnishing service to them.

Suppose now, for example, that a residential rate is established that goes below the cost curve for all use above 100 kilowatt-hours. Under such a rate, the company would decrease its rate of return by increasing its kilowatt-hour sales and gross revenue. It is surprising how close present residential rates are in some cases to that ultimate cost curve if, indeed, some of them are not already below it.

The rate reductions from 1923 through 1936 in Community A were made because of increased operating efficiencies and because of increased use. Chart I illustrates why further reductions because of increased use cannot long continue and how the rate automatically goes down for the increased use.

Consider the residential rate schedule in another form as expressed on Chart II. There is no need to reduce this schedule further to bring about any increased use. As a matter of fact, the level of the lower steps in the rate practically precludes any further reduction. The addition of 10,000 water heaters would not justify further reductions in the 1c rate. Likewise, the addition of 10,000 ranges would not justify a decrease in the 2c rate. These might well be considered bottom steps. But this rate schedule will always cause a decrease in average rate for all increased use.

CHART I



Therefore, the statement that "Rate schedules can always be reduced as use increases" is not necessarily true, especially now that modern rates automatically provide the necessary decrease in average rate for increased use.

This does not mean that all rates are down to the bottom level and that they

CHART II

cannot be reduced further. It is not to be expected that all rate reductions can be suddenly stopped for the public is accustomed to periodic reductions. But it must be realized that when rates are properly designed the same justification or need for their further reduction does not exist to the same extent as in the past.

When rates are properly designed, further reductions should be made only as earnings justify.

II. Will Decreased Rates Always Produce Increased Revenue?

The question of the effect of lower rates on customer use is one that has been given considerable thought and study over a period of many years. The problem is particularly baffling because it can never be definitely known what use or revenue would have been if the rate reduction had not been made. Probably more generalizations have been made on this question than on any other in the industry. Many generally believe that decreased rates will not only promote increased use of service but in such great amounts as to increase gross revenue, net revenue, and net return on the investment. This belief is not confined exclusively to those outside the industry.

General statements concerning the effect of lower rates on revenue without full knowledge of all conditions cannot be wisely made. Most rate reductions are followed by very aggressive new business activities. It can never be known what the effect of that increased new business activity would have been without the rate reduction. Likewise, it is difficult to determine the influence of general economic conditions, of increased purchasing power of the public, and of decreased retail prices of appliances.

In an effort to find an answer to this question, a study has been made in a way that eliminates as far as possible the effect of all factors except the rate reduction itself.

The basic data were obtained from four operating companies in the Middle West system over a wide area extending from Wisconsin to Texas. Each company was requested to select three or four typical communities for study. A rate history for each community was determined as far back as possible. Likewise a frequency curve was prepared on each community by years as far back as the records were available. Such a curve shows the number of customers using certain blocks of kilowatt-hours, as the customers using between 0 to 10, 11 to 20, 21 to 30 kilowatt-hours, etc. The preparation of a series of such frequency curves shows the progress made in increased kilowatt-hours, that is, the number of customers that have improved their use, moving from the 0 to 10 bracket into a higher bracket, etc. Where yearly curves seemed too frequent, they were prepared for every third year.

From a study of these analyses it can be safely stated that a decrease in rate will probably always induce a limited increase in kilowatt-hour sales. For example, if a customer formerly obtained 15 kilowatt-hours for $2.00 and there followed a rate reduction whereby he could obtain 20 kilowatt-hours for the same price, that customer would be induced to increase his use from 15 to 20 kilowatt-hours a month. This does not mean, however, that such a reduction would necessarily induce the customer to pay more than $2.00 a month and, if he paid no more, the company has suffered a decrease in net revenue. The principal question is whether a reduction in rate schedule will in itself promote sufficient increased sales so as to result in increased revenue and in sufficient amount to offset the

additional cost of supplying the additional kilowatt-hours and also sufficient to pay a fair return on the necessary additional investment.

It was found that these communities could be divided into two groups. For purposes of this presentation, Community B will be discussed as representative of one group and Community C as representative of the other.[3]

Community B. Chart III shows the rate history of Community B from 1924 through 1935. This rate history is typical of communities in which the former rates were unusually high, non-competitive, and non-promotional.

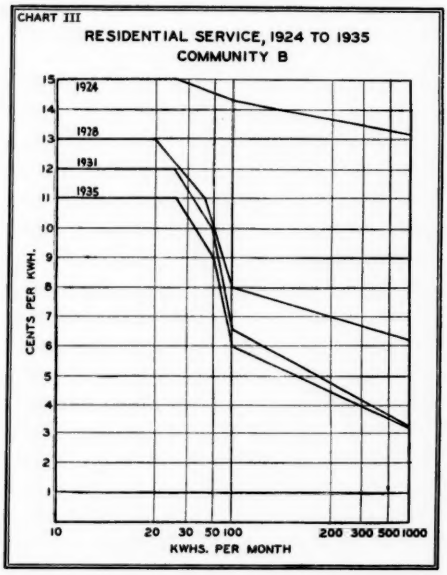
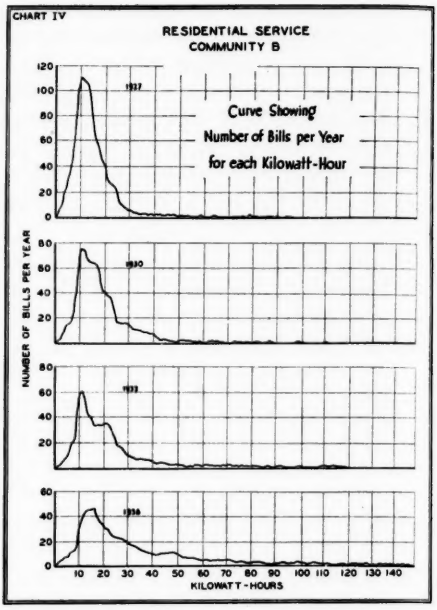


Chart IV shows the number of bills per year for each kilowatt-hour for the various years studied. Chart V shows the frequency curves for this community for the years 1927 through 1936. Consider the customers paying more than $2.00 a month. The $2.00 bill may be considered a fair average of a top-step bill. The question is whether reductions in the top steps induced more customers to pay more than $2.00.

[3] These are very small communities with populations of about 1,000. Larger communities, of course, have lower rates.



In 1927 the customer obtained 13 kilowatt-hours for $2.00; 40% of the bills then were for more than $2.00. In 1936 the customer could obtain 18 kilowatt-hours for $2.00, and 62% of the bills were for more than $2.00. In this case, reduction in the top step actually resulted not only in increased kilowatt-hours but also in increased revenue.

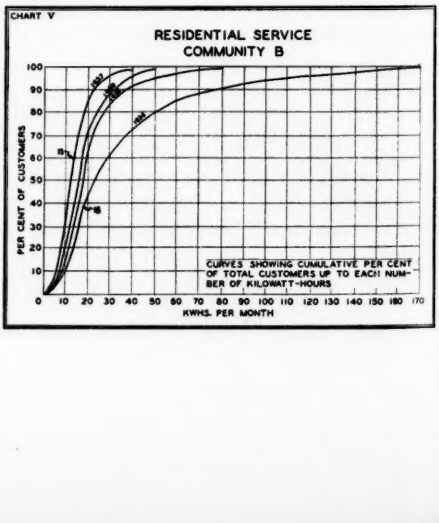


CHART V
RESIDENTIAL SERVICE
COMMUNITY B
PER CENT OF CUSTOMERS
CURVES SHOWING CUMULATIVE PER CENT OF TOTAL CUSTOMERS UP TO EACH NUMBER OF KILOWATT-HOURS
KWHS. PER MONTH

Other cases analyzed showed similar results where the top steps were unusually high.

Community C. This community is typical of those in which the top step was not unduly high and where the rates were fairly promotional and competitive. In this case, somewhat different results were found.

Chart VI shows a rate history of Community C for 1927 through 1936. There was a promotional effect in the older rates that was lacking in Community B. The top step of Community C's rate was reduced 27% in the 10-year period.

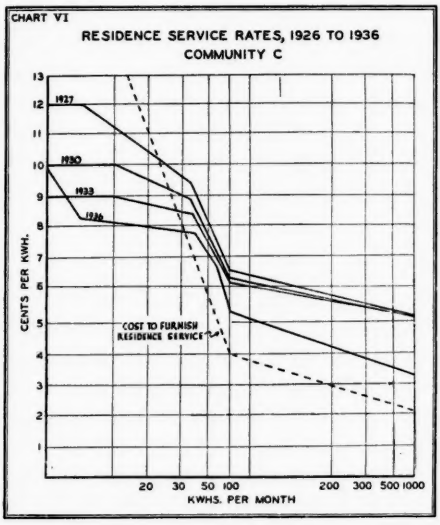


Chart VII shows a frequency curve of this community for 1926, 1930, and 1935. In 1926 the customer could buy 18 kilowatt-hours for $2.00 and 31% of the bills were for more than $2.00. In 1935 the same $2.00 would buy 25 kilowatt-hours and yet the frequency curve shows that only 27% of the bills were for more than $2.00. Although the average rate for this size of bill was reduced 27% during the 10-year period, the per cent of customers above the $2.00 class is less at the end of the period than at the beginning. The reduction in the top step induced increased kilowatt-hours but not increased revenue.

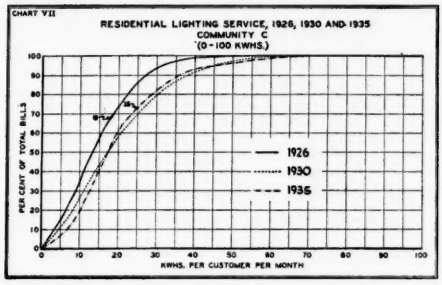
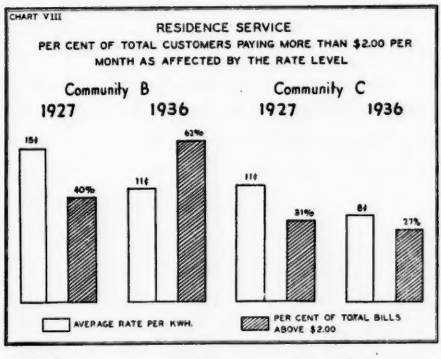


Chart VIII gives a graphic representation of the results in Community B as compared with Community C. In Community B the top step was reduced from 15c to 11c and the rate was made promotional. During that period the number of customers paying $2.00 a month or more increased from 40% to 62%. In Community C the top step was reduced from 11c to 8c and the number of customers paying $2.00 or more actually decreased from 31% to 27%.



Other communities analyzed in this group showed similar results.

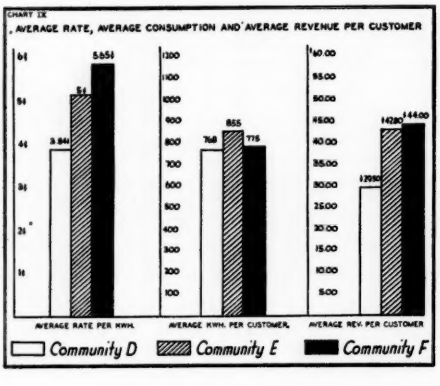
From these studies it may be concluded that, if residential rates are unduly high, non-promotional, and non-competitive, they may be reduced and the customer will be induced not only

to increase use of service but also to pay more money.

If the rates are already sufficiently low and are competitive and promotional, rate reductions may induce limited increased sales but may not produce increased revenue and particularly net revenue.

The follow-on steps in the rate should be competitive with other available means of refrigeration, cooking, and water heating to induce the customer to use service in these brackets. Where the rates are not so competitive a reduction to this level will provide additional revenue. Where the rates are so competitive, the reduction will promote increased use but may not produce increased revenue.

Communities D, E and F. As a further example to illustrate that the low rate does not necessarily produce higher revenue and not even necessarily higher kilowatt-hour sales, consider the case of Community D. The rate is a relatively low one and may not be considered adequate. Chart IX shows the average rate, kilowatt-hours per customer, and revenue per customer in this community as compared with Communities E and F. Natural gas is available in all cases but probably gas rates are lower on the average in Communities E and F than in Community D.



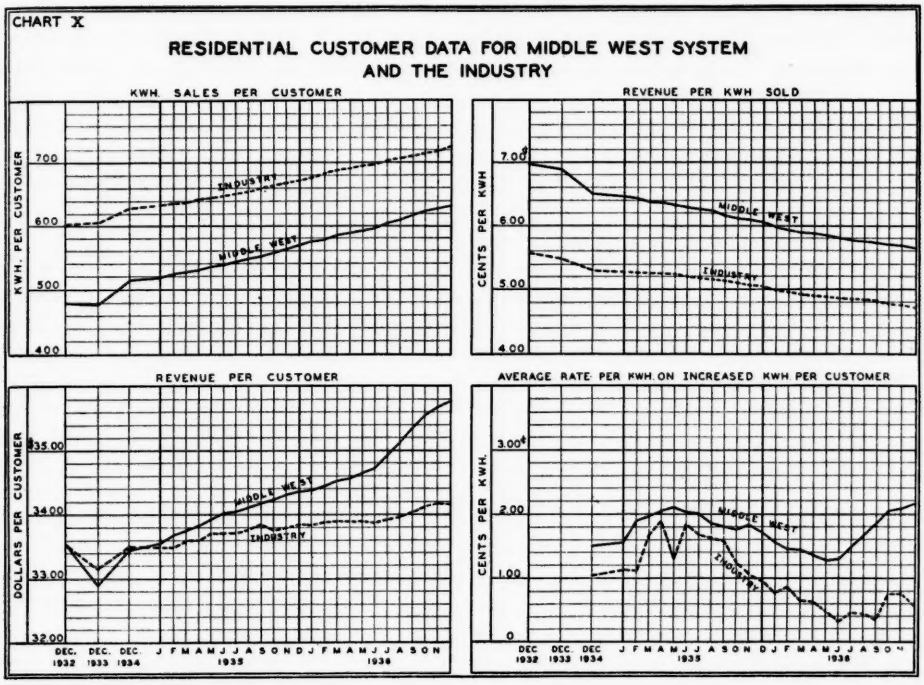
Middle West System Results: Chart X gives a few of the indexes usually referred to in residential service and compares the Middle West system with the industry. Average rates in the Middle West system are somewhat higher than for the industry as a whole. This is as it should be because of the large number of small towns in this system, where 90% of the communities served are under 2,500 population. The last figure on this chart shows the average rate per kilowatt-hour on increased kilowatt-hours per customer. Mention should be made of the limitations in using an average of an average. A different and somewhat higher figure for both Middle West and the industry would result if the total increased residential revenue were divided by the total kilowatt-hour sales. Both of these would have a degree of error caused by change in the number of customers. However, the charts are shown for comparison and may be viewed with that limitation.

III. Should Rates Be at the Same Level Regardless of the Size of Communities?

As pointed out in the introduction, numerous factors must be considered in rate design. The principal one, however, continues to be cost of furnishing the service.

It is common knowledge that the unit costs of furnishing service are greater in smaller communities than in larger ones. Service to small towns scattered over a wide area requires higher investments by reason of the longer transmission lines and higher operating cost. Individual plants would not remedy the condition as diversity would be lost.

Chart XI illustrates this difference. These companies were chosen specifically because they are separate utility companies with separate investments and separate accounts, each company serving exclusively a distinct type of terri-



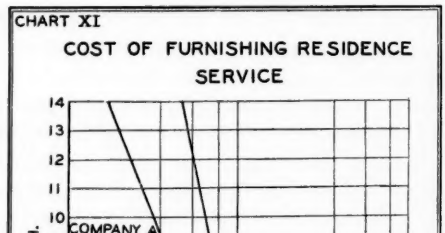
tory—one a densely populated city area and the other a large scattered group of small towns. Company A serves predominantly a city of 45,000 population. Company B serves 257 small towns with an average population of 970. The same procedures were employed in determination of these ultimate cost curves for each company.

It is not intended to infer that the actual rates should represent so great a difference. Practical considerations must enter into rate-making. It is generally recognized that a large community has an obligation to the smaller ones in its trade area and should help to carry these small communities. However, again practical considerations must be taken into account. It is sometimes difficult to convince the large city that it should help to carry its trade area. The large community may at any time resort to government operation, thereby leaving the company with unprofitable small communities.

This is an important subject and much more could be said about it. The example cited here is shown primarily to illustrate the point that the cost of furnishing service is considerably higher in small than in large communities and rates should reflect at least a part of this difference.

IV. Does Recovery in Gross Revenue Result in Complete Recovery from Rate Reductions?

The principal difficulty in studying recovery from rate reductions lies in the lack of knowledge as to what customer use would have been if the rate had not been changed. To avoid this difficulty, another procedure somewhat different from former ones will be outlined here.



A study of recovery by this method deals only with quantities fairly weli known or easily determinable. For example, a company knows the average price per kilowatt-hour it obtains on increased kilowatt-hour sales. It can fairly accurately calculate the load factor of the increased sales. Increased investment costs per kilowatt of demand and increased operating costs are subject to close determination.

With these factors at hand, a given rate reduction can be carried through to determine the effect on net revenue and finally the effect on net return on the investment. A calculation can then be made as to the increased kilowatt-hour sales and increased gross revenue necessary to bring about complete recovery from such a rate reduction. Having determined the necessary increase, the progress can be checked at any point to determine whether or not complete recovery has been obtained.

Too often there is confusion as to what complete recovery really is. Many point to the greatly increased kilowatt-hour sales following a rate reduction; others mention that recovery has been realized when gross revenue is back to where it was before the reduction. Others believe that surely recovery is realized when net revenue has completely recovered.

Unfortunately, considerably more recovery is needed than either recovery in gross or net revenue in order to provide complete recovery in per cent return on the investment. This is particularly so today now that rates are so low for all increased sales. The low follow-on steps have made this so.

Hypothetical Case. The application of a rate reduction to a hypothetical case will illustrate the recovery needed to bring about complete recovery from a rate reduction. The hypothetical utility may not be typical of all utilities but it is typical of those companies serving a large number of small communities. Any difference in the assumptions, however, will not materially affect the results. For example, companies serving large metropolitan centers may have a lower cost on increased power pool investment but, likewise, such companies will probably have a lower rate on the increased sales.

Table I shows a few pertinent figures relating to the hypothetical case.

Table II shows the results of a 5% reduction without any recovery. The 5% reduction of $100,000 in gross revenue results in a reduction in like dollars in net revenue. This point is sometimes overlooked. In other words, where the operating ratio is 50%, a 5% reduction in gross revenue means a 10% reduction in net revenue. This 5% reduction in gross revenue reduces the net return on the investment from 7% to 6% or 14.3%[4]

[4]Consider further that this hypothetical utility has a
(Footnote 4 continued on page 303)

TABLE I. FINANCIAL POSITION OF HYPOTHETICAL UTILITY COMPANY BEFORE RATE REDUCTION

Total system investment	$10,000,000
Investment in power pool	$5,000,000
Investment in distribution	$5,000,000
Total annual gross operating revenue	$2,000,000
Total number of customers	66,666
Average annual revenue per customer	$30
Total annual kilowatt-hour sales	40,000,000
Average annual kilowatt-hour sales per customer	600
Average revenue per kilowatt-hour sold	5c
Total system peak (kilowatts)	15,200
Annual load factor	30%
Total annual operating expense	$1,000,000
Operating ratio	50%
Net revenue (available for depreciation and return)	$1,000,000
Per cent earned on investment for depreciation and return	10%
Allowance for depreciation	3%
Balance for return on investment	7%

reduction in per cent return. It is immaterial whether 6% or 7% is a fair return. There would be similar results if the utility now earned 5%.

TABLE II. FINANCIAL POSITION OF HYPOTHETICAL UTILITY COMPANY AFTER A RATE ADJUSTMENT REDUCING THE ANNUAL GROSS REVENUE 5%

Loss in annual gross operating revenue (5% of $2,000,000)	$ 100,000
New annual gross operating revenue	$ 1,900,000
Loss in annual net revenue (10% of $1,000,000)	$100,000
New operating ratio	52.5%
New net revenue	$ 900,000
Total system investment	$10,000,000
Per cent earned on investment for depreciation and return	9%
Allowance for depreciation	3%
Balance for return on investment	6%

Now assume complete recovery in gross revenue. Table III shows the hypothetical case with this recovery.

(*Footnote 4 continued from page 302*)

financial set-up as follows:

Type of Security	Percentage	Total Dollars in Each Type of Security	Interest Rate	Interest Charges
Bonds	40%	$4,000,000	5.0%	$200,000
Preferred stock	30	3,000,000	6.5	200,000
Common stock	30	3,000,000	10.0	300,000
Total	100	$10,000,000	7.0	$700,000

The $100,000 rate reduction is a 33⅓% reduction in common dividends since all other dividends are fixed.

The added kilowatt-hours to provide $100,000 increase in gross revenue are sold at an average rate of 3c. This is about the average based on the new business program in the Middle West system. This is somewhat lower than the existing average rate of 5c. Consequently, to obtain 5% increase in gross revenue, kilowatt-hour sales must be increased 8.25%. These increased kilowatt-hours must be manufactured and delivered. It means that increased investment in plant capacity must be provided, that there is increased production cost, increased sales expense, and other less important increases. Consequently, net revenue does not increase by $100,000 but only $65,000. This leaves a lesser amount for a return on a greater investment. As a result, the net return on the investment shows a recovery from 6% to only 6.4%. This is still considerably short of the 7% before the reduction. The utility is far short of recovery when it has recovered in gross revenue only.

Now carry the case one step farther to determine the results following complete recovery in net revenue. Table IV illustrates this case. This requires an increase of 12.8% in kilowatt-hour sales and an increase of 7.7% in gross revenue.

As in the previous case, however, the increased kilowatt-hours require increased investment and increased expense. Consequently, the final result is a balance of the same net revenue as before the reduction but a still higher investment. The return on investment is 6.58%. Consequently, even after complete recovery in net revenue the company has not completely recovered to a point where it is obtaining the same return on the investment as before the reduction. The return on investment is the only measure of complete recovery.

TABLE III. FINANCIAL POSITION OF HYPOTHETICAL UTILITY COMPANY AFTER INCREASED SALES HAVE RECOVERED THE LOSS IN GROSS REVENUE*

Gross operating revenue to be recovered				$ 100,000
Additional sales to recover:				
Additional Load	Annual Killowatt-Hrs.	Average Rates	Additional Annual Revenue	
2,250 refrigerators	900,000	4c	$36,000	
660 ranges	990,000	2c	19,800	
220 water heaters	660,000	1c	6,600	
Lighting and miscellaneous appliances	752,000	5c	37,600	
	3,302,000	3c		$ 100,000
Additional kilowatt-hour sales required (8.25%)				3,302,000
Additional system peak to serve new load (40% L.F.)				945
Additional investment $300 per kilowatt-hour				$ 283,500
New system investment				$10,283,500
New gross operating revenue				$ 2,000,000
Additional operating expense (35% operating ratio)				$ 35,000
Additional net revenue (available for depreciation and return)				$ 65,000
New net revenue (available for depreciation and return)				$965,000
Per cent earned on investment for depreciation and return				9.4%
Allowance for depreciation				3%
Balance for return on investment				6.4%

* Supporting data for the calculation of Table III are as follows:

TYPICAL SALES PROGRAM TO RECOVER $100,000 IN GROSS REVENUE

Additional Load Required	Percent of Total Customers	Annual Killowatt-Hours per Unit	Total Additional Kilowatt-Hours	Percent Additional Kilowatt-Hours	Average Rate Earned per Kilowatt-Hour	Additional Annual Gross Revenue
2,250 Refrigerators	3.37	400	900,000	2.25	4c	$ 36,000
660 Ranges	1.00	1,500	990,000	2.47	2c	19,800
220 Water heaters†	.33	3,000	660,000	1.65	1c	6,600
Lighting and miscellaneous			752,000	1.88	5c	37,600
			3,302,000	8.25	3c	$100,000

Additional System Peak

2,250 Refrigerators	at	80 watts	180 kilowatts	
660 Ranges	at	800 watts	528 kilowatts	
220 Water heaters†	at	100 watts	22 kilowatts	
752,000 kilowatt-hours light and miscellaneous	at	40% L.F.	215 kilowatts	
			945 kilowatts	40% L.F.

Added Investment

Power Pool				
General stations	at	$125.00 per kilowatt installed capacity		
Trans. lines	at	50.00 per kilowatt installed capacity		
Substations	at	25.00 per kilowatt installed capacity		
		$200.00 per kilowatt installed capacity		
Reserve capacity 25%		50.00		
Total		$250.00 per kilowatt system peak		
945 kilowatts at $250.00				$236,250
Distribution System				
660 Ranges at $75.00			$ 49,500	
220 Water heaters at $25.00			5,500	55,000
Total				$291,250
Total per kilowatt of added system peak				$308.00

Added Operating Expense

3,302,000 kilowatt-hours at $.0055	$18,161	
New business at .70/$ amortized over 10 years	7,000	
Maintenance and operation of added property at 1%	2,912	
Taxes at 2%	5,825	
Commercial $3.00/added meter	660	
General and miscellaneous $6.00/added meter	1,320	
	$35,878	(35% operating ratio)

† If lighting were substituted for WH load in obtaining recovery, it would reduce load factor, increase investment per kilowatt added and increase operating ratio.

TABLE IV. FINANCIAL POSITION OF HYPOTHETICAL UTILITY COMPANY AFTER INCREASED SALES HAVE RECOVERED THE LOSS IN NET REVENUE

Net revenue to be recovered	$ 100,000
Additional gross revenue required at 35% operating ratio (7.7%)	$ 153,846
Additional kilowatt-hour sales required at 3c per kilowatt-hour (12.8%)	5,128,200
Additional kilowatt system peak to serve new load (40% L.F.)	1,465
Additional investment at $300 per kilowatt	$ 439,500
New system investment	$10,439,500
New gross operating revenue	$ 2,153,846
Additional operating expense (35% operating ratio)	$ 53,846
New net revenue (available for depreciation and return)	$ 100,000
Per cent earned on investment for depreciation and return	9.58%
Allowance for depreciation	3%
Balance for return on investment	6.58%

Now, as a final case, what must the company obtain in increased kilowatt-hours and increased gross revenue to realize complete recovery from the 5% rate reduction? Table V illustrates this case. To prepare this table, it was necessary to work backward from a 7% return. To obtain this, the hypothetical utility must increase its kilowatt-hour sales by 25% and must increase its gross revenue 15%. In other words, with rates designed as they are now with low follow-on steps as they should be designed to meet competition and to meet existing conditions, the company must obtain

TABLE V. FINANCIAL POSITION OF HYPOTHETICAL UTILITY COMPANY AFTER INCREASED SALES HAVE RECOVERED THE LOSS IN RETURN ON INVESTMENT

Additional net revenue required to recover 7% return on investment (19.5%)	$ 195,000
Additional gross revenue required at 35% operating ratio (15%)	$ 300,000
Additional kilowatt-hour sales required at 3c per kilowatt-hour (25%)	10,000,000
Additional kilowatt system peak to serve new load (40% L.F.)	2,855
Additional investment at $300 per kilowatt	$ 856,500
New system investment	$10,856,500
New gross operating revenue	$ 2,300,000
Added operating expense	$ 105,000
New net revenue (available for depreciation and return)	$ 1,095,000
Per cent earned on investment for depreciation and return	10%
Allowance for depreciation	3%
Balance for return on investment	7%

25% increase in kilowatt-hour sales to recover completely from a 5% reduction in gross revenue.

Chart XII shows graphically the results of the last four tables. The figures at the top of the blocks indicate the per cent change from the original condition.

Therefore, complete recovery from a rate reduction is not realized with a mere recovery in gross revenue. True, some companies have a present condition of excess capacity and do not now have to provide increased capacity for all additional kilowatt-hours sold. These cases are few, however, and even where they exist reserve capacity is being depleted and the loads are increasing so rapidly that these companies may shortly find themselves in need of spending new money for new capacity. Even where the excess capacity exists, all increased kilowatt-hours should be sold at a price sufficient to cover the proportionate share of the existing capacity that these kilowatt-hours require for delivery.

Formula. The following formula gives the required increase in annual kilowatt-hours per customer necessary to produce complete recovery in rate of return following a residential rate reduction.

$$X = \frac{A\ B\ C}{D - E}$$

in which

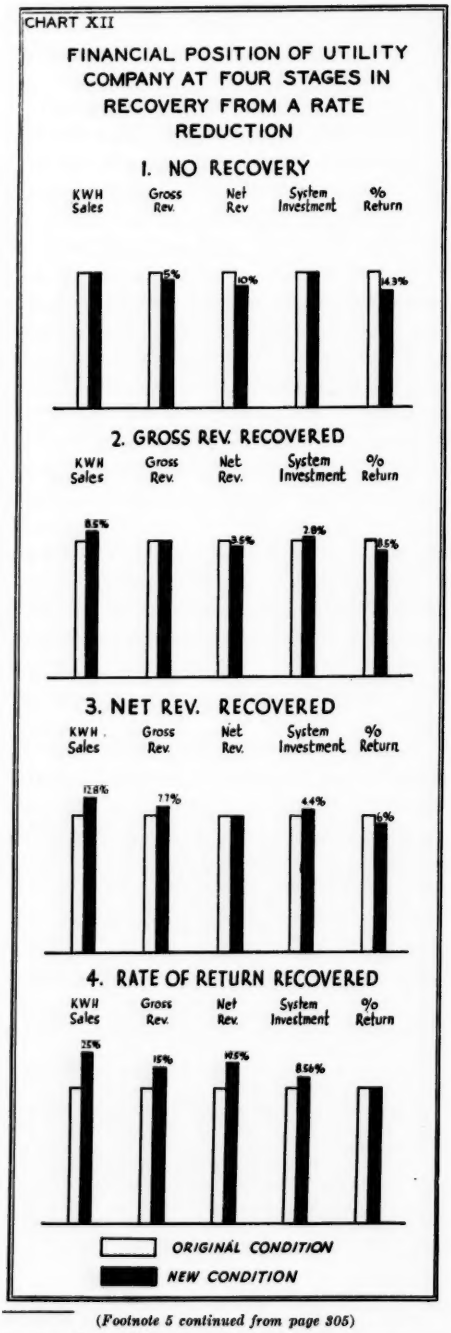
X = required annual kilowatt-hours per customer increase
A = per cent rate reduction expressed as a decimal
B = annual average kilowatt-hours per customer before rate cut
C = average rate (expressed in dollars per kilowatt-hour) before rate cut
D = average rate (expressed in dollars per kilowatt-hour) at which increased kilowatt-hours are sold
E = average cost (expressed in dollars per kilowatt-hour) of delivering increased kilowatt-hours sold, including return on added investment

For example, assume:

A = 5% (.05) D = $0.03
B = 600 E = $0.02[5]
C = $0.05

(*Footnote 5 continued on page 306*)

[5] This means that the cost per kilowatt-hour of de-



Applying these figures to the formula, we have

$$X = \frac{.05 \times 600 \times .05}{.03 - .02}; \qquad X = \frac{1.50}{.01}$$

This is an increase of 25%. In other words, a 25% increase in kilowatt-hours is necessary to provide complete recovery from a 5% rate reduction.

Conclusion

Properly designed rate schedules automatically provide a decrease in average rate for all increased use of electricity.

Decreased rates will probably always result in a limited increase in kilowatt-hour sales but not necessarily an increase in gross revenue nor net revenue. The nature of the rate schedule must be carefully analyzed before it is reduced as a means of providing more revenue. If it is properly designed and is sufficiently low and competitive, there is no need to reduce it further for this purpose. Reductions then should be made as earnings justify the reduction.

Recovery from a rate reduction is a difficult matter to determine but there are methods that lead to fairly accurate conclusions. As present rates are fairly low, especially for increased use, a much greater increase in sales is required to provide complete recovery from a rate reduction. A complete recovery in gross or net revenue still leaves the company considerably short of complete recovery in per cent return on the investment. Complete recovery is only realized when the company's net return after the reduction is the same as that before. In the hypothetical case which is typical of utilities operating in small communities with promotional rates, the company is required to increase its kilowatt-hour sales by 25% in order to recover completely from a 5% rate reduction.

(*Footnote 5 continued from page 305*)

livering the additional service including a return on any additional investment required must be $0.02 so that anything received in excess of $0.02 per kilowatt-hour will be available for recovery from the reduction.

Urban Land Department

MORTON BODFISH, *Editor*

Estimating the Effects of Homestead Tax Exemption

THE exemption of homesteads from taxation is important, not because it is an isolated phenomenon existing apart from the general problem of tax exemption, but because it possesses characteristics which strike at the roots of the property tax system.[1] Local governments receive approximately 90% of their revenues from the general property tax.[2] Therefore, any material alteration in the general property tax system such as exemption of homes from all or a part of the tax burden may be, in the absence of adequate replacement taxes, the factor determining the solvency or bankruptcy of many local governments.

Numerous attempts have been made to determine the effect of homestead tax exemption upon state and local revenues. Among the more important are the studies that have been made for the states of Oklahoma, Missouri, Kansas, Alabama, New Mexico, and Utah.

The Oklahoma Studies

In November, 1934 the Brookings Institution of Washington, D. C., made a study of the immediate effect of a homestead tax exemption upon local revenues. The City of Stillwater, Oklahoma, a community of moderately valued homes and a population of approximately 8,000 constituted the subject matter of the survey. The data revealed that a $3,000 exemption would remove from the tax rolls practically all homesteads, while a $1,500 provision would approximate 85% of complete homestead exemption. It was also discovered that the reduction in total assessed value of Stillwater property would be as follows:[3]

Exemption	Percent of Total Valuation Exempted
$1,000	20.76%
2,000	27.51
3,000	28.97
All homesteads	29.93

[1] For definition of "homestead tax exemption" see May, Alonzo B., "The Status of Homestead Tax Exemption in the United States," 13 *Journal of Land & Public Utility Economics* 132 (May, 1937).

Some interesting facts were discovered by the Oklahoma Tax Commission in its study of the effect of homestead tax exemption in Oklahoma at various amounts of exemption. It was found that the average reduction in total assessed valuation of all counties studied (31 in number) would be as follows:[4]

Exemption	Percent of Total Valuation Exempted
$ 500	6.4%
1,000	10.3
1,500	12.8
2,000	14.2
2,500	15.1
All homesteads	17.6

The percentages in Table I are very significant. It will be observed that, in those counties where the percentage of real property is extremely high when compared to the total of real and personal property, the effect of homestead tax exemption will be to lower sharply the value of the tax base. Also, in counties where the percentage of property owned by public service corporations is relatively high, the *tendency* is for homestead exemption to be less serious in its effects upon the total tax base. The table apparently indicates that the county of Tulsa is the exception to both rules, for in that county the percentage of real property is high and the percentage of property owned by public service corporations is low, yet real property tax exemptions apparently diminish the tax base only moderately. The explanation is that the county is primarily urban, the City of Tulsa being located

[2] American Legislators' Association, *The Exemption of Homesteads from Taxation*, p. 8.

[3] See "A Study of the Probable Immediate Effect of Homestead Tax Exemption in Oklahoma," Oklahoma State Tax Commission, *Bulletin* No. 2, February, 1935; also Thomas, Raymond D., "Exemption of Homesteads from Taxation: A Case Study in Oklahoma," 11 *Journal of Land & Public Utility Economics* 256-265 (August, 1935).

[4] *Analysis of the Effect of Homestead Tax Exemption in Thirty-one Oklahoma Counties*, Oklahoma Tax Commission, January 25, 1936.

TABLE I. REDUCTION IN TAX BASE IN OKLAHOMA COUNTIES UNDER HOMESTEAD TAX EXEMPTION*

County	Percent Reduction in Tax Base				Percent of Pub. Serv. Corp. Prop.	Percent of Real Prop.	Percent of Home Ownership
	$500	$1,000	$1,500	$2,000			
Tulsa.....	4.8	8.1	10.3	12.5	14.7	67.1	37.9
Major.....	7.3	12.4	15.5	19.5	16.6	72.3	49.8
Washington..	5.3	8.5	10.7	12.8	23.2	42.0	42.7
Tillman.....	7.3	13.0	17.5	23.2	13.0	78.8	36.9
Latimer.....	6.9	8.3	8.7	8.8	48.7	45.6	35.5
Le Flore.....	5.4	7.2	7.6	7.8	42.5	49.3	31.7
Cherokee....	12.6	18.1	20.5	21.8	16.3	72.1	40.9
Murray.....	6.9	10.6	12.2	13.0	31.7	59.5	39.9

*Table is briefed from data presented in *Analysis of the Effect of Homestead Tax Exemption in Thirty-one Oklahoma Counties.*

therein. Furthermore, the average value of homesteads located in Tulsa County is higher than that generally prevailing in other counties. Where this is true the tendency is for homestead exemption to reduce the tax base less than if the case were otherwise. Again, there is a tendency for homestead exemption laws to cut down the tax base severely where the percentage of home ownership is high.

The conclusion of the Oklahoma Tax Commission as to probable tax reduction under a $1,500 homestead exemption law is as follows:

"The population of these 31 counties is estimated at 809,992 or 13.8 per cent of the total of the state. Assuming further that these 31 counties are a good sample of the state, a $1500 exemption of homesteads would result in an estimated total tax reduction of $3,283,363.00, of which county governments would lose 36.5 percent, cities and towns, 9.6 percent, and school districts 53.9 percent; and a $1000 exemption would result in an estimated total tax reduction of $2,674,905 for the whole state, which would be shared in about the proportion by local governments as above indicated."[5]

Missouri, Kansas, Alabama and New Mexico Studies

In 1935 the State of Missouri defeated a proposal to exempt homesteads from taxation. The survey conducted by the Kansas City Civic Research Institute relative to the effects on revenues in Missouri had such a proposal been adopted is, nevertheless, interesting and enlightening. The Institute found that, if legislation were passed exempting homesteads up to $1,500 of assessed value, Kansas City annual revenues would diminish from $750,000 to $1,000,000. Other cities would suffer revenue losses ranging from 6 to 70%, the smaller municipalities losing the largest percentages. It was found, for example, that the City of St. Louis, possessing 67,162 taxable homes, would suffer a decline of only 6%, or a total loss in revenues of approximately $1,200,000. On the other hand, Sedalia, a city with 2,927 taxable homes, would lose about $97,000 in revenues or a reduction of 70%. The Institute concluded that the revenue decline for the State of Missouri as a whole would be about 14% of the total amount of property tax collections, or a net loss approximating $14,000,000.[6]

In March, 1936 the Research Department of the Kansas Legislative Council published a survey relative to the probable effects on public revenues if a tax exemption measure were passed providing for a blanket tax exemption of all rural properties of 40 acres and their improvements. The estimate was constructed from the 1930 Federal Census figures which show the number and size of farms, number of properties occupied by the owners, and the 1934 figures which indicate total assessments and average per-acre assessments.

The Council found that the total assessed valuation of such exempt property would amount to $180,933,148 or 15.4% of the assessed farm property in the State or 6.6% of the valuation of all property. The percent of the 6,299,178 acres that is occupied by the owners is not known. Nevertheless, the percent of owner occupancy for most of the counties ranged between 50 and 60%. If, however, the 1930 Census figures are

[5] *Ibid.*, p. 2.

[6] *The Exemption of Homesteads from Taxation*, Civic Research Institute of Kansas City, Missouri (December, 1935).

TABLE II. ESTIMATED VALUATION REDUCTION AND PERCENTAGE OF TOTAL STATE VALUATION THROUGH HOMESTEAD TAX EXEMPTION AT VARIOUS AMOUNTS*

Exemption	Maximum		Minimum		Probable Median	
	Amount	Per cent	Amount	Per cent	Amount	Per Cent
$ 500	$133,000,000	5.21%	$ 80,000,000	3.14%	$105,000,000	4.12%
1,000	250,000,000	9.79	150,000,000	5.88	200,000,000	7.84
1,500	349,000,000	13.67	209,000,000	8.20	280,000,000	10.98
2,000	430,000,000	16.87	258,000,000	10.12	345,000,000	14.53
2,500	496,000,000	19.45	298,000,000	12.69	400,000,000	15.69

*_Homestead Tax Exemption, Supplementary Report_, Research Department, Kansas Legislative Council (July, 1926), p. 6.

used as a basis for an estimation, it is clear that farm property to the value of $104,600,000 would be exempt under such legislation.[7]

The Council, using the same sources as were used in making the estimate where the 40-acre blanket exemption was assumed, submitted estimates in the July, 1936 _Supplementary Report_ showing "the possible range and relative variations at the various exemption amounts." Table II indicates the Council's findings as to estimated minimum, estimated maximum, and probable median loss in assessed valuation at various exemption rates.

In the latter half of 1935 the Bureau of Business Research of the University of Alabama made a study of the probable effects of a homestead tax exemption law where the maximum amount was $1,200 on an acreage not in excess of 160 acres. Thirty-one of Alabama's 67 counties were included in the survey and the conclusions reached relative to the counties studied were used as a basis in determining estimates for the entire State. It was discovered that the loss which 49 of the 67 counties would sustain would range from 10 to 25%, 21 of the counties losing 20 to 25% of their total assessed valuation.

In January, 1935 the Legislature of New Mexico passed a constitutional amendment which provided for the exemption of the homestead of

"... each head of a family, or widow, and of every honorably discharged soldier, sailor, marine, and army nurse, who served in the armed forces of the United States at any time during th oeriod in which the United States was regularly and fficially engaged in any war, in the sum of two thousand five hundred dollars."[8]

The act proposed to amend Section 5, Article 8 of the New Mexico Constitution which provides that the Legislature may exempt from taxation the property of family heads to the amount of $200 and the property of all honorably discharged soldiers, sailors, marines, and army nurses who are veterans of any American wars, to the sum of $2,000.

At the special election held September 17, 1935 the voters of New Mexico defeated the proposed amendment by a vote of three to one. Nevertheless, the New Mexico attempt to exempt homesteads from taxation is interesting, not only in itself but also because of the survey it called forth by the Tax Payers Association of New Mexico.[9]

Table III shows in detail the loss in valuation which would have been suffered by the 12 counties if the $2,500 homestead tax exemption law had been ratified. By using these figures as a basis, the Association estimated that the valuation loss which would be suffered by the entire State would total $31,500,000, or a revenue loss of approximately $650,000.

The Tax Payers Association of New Mexico vigorously opposed the amendment, asserting that ratification would mean either drastic cuts in governmental functions, particularly education, or the imposition of special taxes on tobacco, amusements, cosmetics, ammunition, guns, athletic goods, bank checks, playing cards, etc. It was further argued that, if the suggested increase of the sales tax to 4% became an actuality, in order to make up revenue losses resulting from homestead tax exemption legislation, such a high rate on this type of

[7] _Homestead Tax Exemption, Preliminary Statement_, Research Department, Kansas Legislative Council (March, 1936).

[8] Senate Joint Resolution No. 5; Twelfth New Mexico Legislature, approved January 31, 1935.

[9] See _New Mexico Tax Bulletin_, Vol. XIV, Nos. 7, 8.

TABLE III. ESTIMATED LOSS IN VALUATION OF 12 NEW MEXICO COUNTIES UNDER PROPOSED TAX EXEMPTION LAW*

County	1934 Assessment	Loss in Valuation	Percentage Loss in Valuation
Bernalillo	$ 24,587,122	$ 4,624,433	17.9%
Chaves	13,345,120	1,332,065	9.9
Curry	8,575,712	1,040,767	12.1
Guadaloupe	6,743,234	258,775	3.9
Mora	4,302,128	220,804	5.1
Roosevelt	7,721,471	954,562	12.3
Sandoval	5,036,662	339,058	6.7
San Miguel	14,362,491	1,476,223	10.3
Santa Fe	12,459,959	1,100,897	8.9
Taos	4,536,773	240,588	5.3
Torrance	6,716,347	448,726	6.7
Valencia	11,614,630	541,689	4.6
Total	$120,001,649	$ 12,578,487	10.5

*Source: *New Mexico Tax Bulletin*, August, 1935, pp. 128–129.

regressive tax would tend to dry up the source of sales tax revenues. The Association averred that the small reduction in real property taxes for home owners would be offset by higher prices which the recipients of homestead subsidies would have to pay because of new forms of taxes appearing in commodity prices. Last, the owners of homesteads of a value exceeding $2,500 might have their taxes increased on the excess value by means of higher tax rates or higher assessments or both.[10]

The Utah Survey

At the election held November 3, 1936 the people of Utah ratified an amendment referred to them by the Legislature, which reads as follows:

"The legislature may provide for the exemption from taxation of homes, homesteads, and personal property, not to exceed $2000 in value for homes and homesteads and $300 for personal property."[11]

It will, of course, be observed that the Utah amendment merely confers the power upon the Legislature to enact homestead legislation if it so desires. Noteworthy, also, is the unique provision for a restricted personal property exemption.

The Legislature appointed a committee to study the problem of homestead tax exemption and report its findings to the governor in advance of the 1937 session. This committee found that the amount of tax loss which would be suffered if the proposal became law would depend largely upon the definition of a homestead as determined by the Legislature.

Five possible definitions were used as a basis for determining revenue losses. Under Plan I the definition included all real property in Utah, "including homes, farms, mines, utilities and other corporate wealth, such that all property owners, regardless of the type of property, would secure the exemption privileges."[12] Obviously, the maximum revenue loss would be suffered by the several taxing jurisdictions under this plan. It is very unlikely that the Legislature will define a homestead so broadly; nevertheless, the committee studied the effects of a homestead exemption law under Plan I in order to determine the maximum possible losses that could be reasonably expected under the most liberal definition of a homestead. Under Plan II the committee used the definition of a homestead as used by Utah courts for judicial purposes—namely, that where a person owns several houses, farms, stores, vacant lots, or other real property, the owner is required to designate which property is his lawful homestead. Only one exemption is permitted under the judicial definition. Under Plan III only real property improvements would be exempted. The land itself where the improvements were located would not be included in the exemption. It is clear at once that this definition would result in less revenue losses than would be the case under either Plans I or II. Plan IV restricted

[10] *Ibid.*, September, 1935, pp. 134-135.

[11] Laws of Utah (1935), p. 257.

[12] Report, *Investigating Committee of Utah Governmental Units* (1936), State of Utah, p. 4.

the definition of a homestead to homes occupied by their owners. Under Plan V the exemption was to apply only to the house and buildings of properties where the owners actually were in bona fide residence. It will thus be readily apparent that Plan V would result in less revenue loss than any of the other plans.

The committee found that, if a law were passed which provided for exemption of homesteads up to a maximum value of $2,000 and $300 worth of personal property, the revenue loss that would be sustained by the state and local governments would be as follows:[13]

Plan	Percent of Revenue Loss
II	25.5%
III	13.3
IV	12.4
V	9.4

The committee in its estimations of the possible losses in Utah cities under a law providing up to $2,000 for homesteads and $300 for personal property based its findings on a study of 72 cities. The losses are as follows:[14]

Plan	Percent of Losses in City Revenues
II	31.5%
III	21.2
IV	18.2
V	12.0

That a homestead exemption law for the State of Utah, along the lines laid out by the amendment to the Utah Constitution, would prove a very serious problem is readily evident when one considers that 74.3% of all land in Utah is already tax exempt. The explanation for the large percentage of nontaxable real property lies in the fact that the Federal Government owns approximately 2/3 of the land area of the State. The State of Utah also owns large areas which were obtained through federal educational land grants. These, too, are tax exempt. The value of all tax-exempt property totals, according to the committee's report, $99,486,189 or roughly 100 million dollars. This amounts to 19% of the total assessed valuation of Utah, and if it were subjected to taxation on the basis of the average levy for the State as a whole, the yield would approximate 3⅓ million dollars.[15]

The committee recommended that the Legislature adopt Plan IV if the people ratified the proposed amendment. Under this plan only homes and homesteads occupied by the owners, up to $2,000 in value and household furnishings up to a minimum value of $300, would be exempt from taxation. It was further recommended that vacant city lots, farm land, or homes not occupied by the owner, not be made eligible for tax exemption. It must be kept in mind, however, that the committee used the figure $2,000 only to indicate a maximum for a liberal homestead exemption law. It was not averse to maximum exemption rates of less than $2,000.

Finally, it was estimated that under a homestead tax law the revenue loss that would accrue to the several taxing jurisdic-

[13] The estimations are based upon the 1935 assessments in property which totaled $517,384,850. Total property tax revenues for that year amounted to $17,426,672 for state and local governments (*Ibid.*, p. 34).

[14] *Ibid.*, Figure 30-A, p. 41.

[15] *Ibid.*, pp. 61-66. The 100-million-dollar exemption total includes the value of the national forests. The value of the latter was arrived at by capitalizing the annual income at 4%. This totals approximately $15,000,000. If subjected to the average tax rate, the national forests would yield a return to the Utah governments of $505,000 per year in addition to the $48,000 the State at present receives as its share of the national forest income. The Utah State Tax Commission in 1934 stated that, if a $2,000 homestead exemption law had been in force in 1933, the total loss in revenues from the property tax would have been $2,798,000. The report further stated, "If owner-occupied homes and dwellings are exempted, a very substantial portion of the tax revenues upon which the counties, cities, towns, and school districts depend for financial support will immediately be removed. Under our present system of statutory limitations of levies, which limits have been reached in the majority of the communities, there will be no method of increasing the tax revenues from the property which will remain upon the tax rolls. These limits must necessarily be eliminated or substantially raised if the same amount of revenue for the operation of local government is to be obtained from the property tax. If the property tax is not resorted to, resort must be had to other forms of taxation or else governmental expenditures must be substantially decreased." (*Second Biennial Report*, State Tax Commission of Utah, 1933-34, p. 15.)

tions would be borne in approximately the following proportions:[16]

State	7.0%
Counties	19.4
Cities	22.1
School districts	51.5

The above figures do not mean that counties would lose 1/5 of their revenue, but that the county share of the tax loss resulting from an exemption law would approximate 1/5 of the total.

[16] *Report*, Investigating Committee of Utah Governmental Units (1936), State of Utah, p. 153.

Conclusion

The data indicate that cities and school districts will suffer a greater percentage of decline in total revenues under a homestead tax exemption policy than will county and state jurisdictions. Furthermore, the loss to small towns will be greater than to large cities. Finally, many states may find it necessary, if they pass homestead exemption laws, to remit funds to smaller political subdivisions to replenish impoverished treasuries.

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Land Resources Department

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Pennsylvania Planning and Zoning Enabling Acts

ALL Pennsylvania municipalities now have the authority to adopt and enforce zoning ordinances. Cities, boroughs, first-class townships, second-class townships, and counties are empowered to control uses of land and structures in the interest of the general welfare. The type of control possible in cities, boroughs, and first- and second-class townships is primarily urban and does not concern "rural" zoning, except so far as there may be conflicting or common interest among or between different political subdivisions in zoning a particular municipality. The following description concerns itself with rural planning and zoning which is the type of control sought in the County Zoning Enabling Act and in the County Planning Enabling Act, both of which were passed by the 1937 session of the General Assembly. The Second-Class Township Zoning Act was also passed in the session just ended.

County Zoning Act[1]

Pennsylvania counties do not have home rule. The General Assembly legislates for the counties, by class of county.[2] For this reason the zoning act was written as an amendment to the code (Pamphlet Laws 1278) dealing with counties of the second to eighth classes inclusive,[3] thus giving the Board of Commissioners of these counties the power to "adopt resolutions and ordinances prescribing the manner in which powers of the county shall be carried out, and generally regulating the affairs of the county." Such a section is necessary in order to make it possible for counties to adopt and enforce ordinances.

The grant of power gives the board of county commissioners authority

"by ordinance to regulate in any portion or portions of such county which lie outside of cities, boroughs, and townships of the first class, the location, height, bulk, and size of buildings and other structures, the percentage of lot which may be occupied, the size of yards, courts, and other open spaces, the density and distribution of population, the uses of buildings and structures for trade, industry, residence, recreation, public activities, or other purposes, and the use of land for trade, industry, residence, recreation, agriculture, water supply conservation, soil conservation, forestry, or other purposes."

It is an act designed to control either the purely rural or the purely urban areas, or any combination of the two.

The section of the act which deals with the purposes of zoning regulation is of interest in the following respect:

"Such regulations shall be designated and enacted for the purpose of . . . preventing on the one hand excessive concentration of population, and on the other hand excessive and wasteful scattering of population or settlement, promoting such distribution of population and such classification of land uses and distribution of land development and utilization as will tend to facilitate and conserve adequate provisions for transportation, water flowage, water supply, drainage, sanitation, educational opportunities, recreation, soil fertility, food supply, protection of the tax base, securing economy in governmental expenditures, fostering the State's agricultural and other industries, and the protection of both urban and non-urban development."

If the county commissioners make use of the act (the power is permissive, not mandatory), a zoning commission of three, five, or seven members shall be appointed, the majority of whom are to be individuals who do not hold elective public office. Provision is made for joint or common commissions for two or more counties. The commission exists as long as the ordinance lasts and the members are reimbursed only for necessary expenses incurred. If the county has or later appoints a county planning board (see below), the county com-

[1] The act is a joint product of the efforts of the Pennsylvania State Planning Board, Land Use Planning Section of the Resettlement Administration, various faculty members of Pennsylvania State College, State Legislative Reference Bureau, and Mr. Alfred Bettman, Chairman, District Number 5, National Resources Committee. It is essentially a modification of the draft outlined by Mr. H. Walker in *Land Use Planning Publication*, No. 10, adapted to Pennsylvania conditions (Laws 1937, No. 435).

[2] Counties are classified by population, as follows: Class 1—over 1,500,000; Class 2—800,000 to 1,500,000; Class 3—250,000 to 800,000; Class 4—150,000 to 250,000; Class 5—100,000 to 150,000; Class 6— 50,000 to 100,000; Class 7—20,000 to 50,000; Class 8—less than 20,000.

[3] Philadelphia, the only first-class county, is coterminous with the area of the City of Philadelphia.

missioners may delegate the powers and duties conferred by this act to the county planning board.

The zoning commission is directed to "make for certification to the board of county commissioners of such county, a zoning plan or plans, including both the full text of the zoning ordinance or ordinances and the maps representing the recommendations of the commission for the regulation" of matters set forth in the grant of powers quoted above. The zoning commission must submit the tentative plan and map to at least one properly advertised public hearing, and may compel attendance of witnesses and giving of testimony. The tentative plan must also be submitted to the State Planning Board "for advice and recommendations," but such advice and recommendations are not binding on the commission or the county commissioners. Provision may be made in these ordinances that building permits must be issued "as a condition precedent to the right to erect, construct, reconstruct, or alter any building or structure within any district covered by such zoning ordinance." Such a provision should help to control, and eventually abate, non-conforming uses, but may also delay adoption of zoning ordinances. However, the provision is only permissive, and not required in any ordinance. The zoning commission submits its final plan and map to the county commissioners. The commissioners are required to hold a public hearing thereon before approving or disapproving the proposed ordinance. The county commissioners cannot make changes in the ordinance unless such change or departure is again submitted to the zoning commission. However, the powers of the zoning commission are only advisory and cannot bind the board. The board accepts or rejects the ordinance and the map and, if accepted, the regulations become effective 10 days after publication in one newspaper of general circulation in the county, unless otherwise specified in the ordinance.

Amendment may be made to the ordinance at any such time as the board of county commissioners may desire, but the process is the same as for enacting the original ordinance. Any addition, revision, or deletion must be submitted to the zoning commission and to the State Planning Board, but again, recommendations of these two bodies have only advisory effect on the commissioners.

The zoning commission of any county may cooperate with that

> "of other counties, and with the planning, zoning, legislative, and administrative authorities of cities, boroughs, first class townships, or other municipalities, either within or without such county, with a view to coordinating and integrating the zoning of the county with the planning and zoning of other counties or of municipalities."

A board of adjustment of three to five members is appointed by the board of county commissioners of any county that enacts an ordinance. Not more than half the members of the board may be members of the zoning commission. Members are to be allowed compensation at a rate to be fixed by the commissioners. A joint or common board may be appointed for two or more counties on agreement of the boards of county commissioners of the counties concerned. Other rules and regulations for the board of adjustment shall be specified in the ordinance, and the board may adopt further rules of procedure.

The section which deals with the board of adjustment contains the usual provisions and regulations, but the powers of such a board are limited much more than is usually the case, by the following words defining powers:

> "Where by reason of exceptional narrowness, shallowness, or shape of a specific piece of property at the time of the enactment of the regulation, or by reason of exceptional topographic conditions, or other extraordinary and exceptional situation or condition of such piece of property the strict application of any regulation enacted under this act would result in peculiar and exceptional practical difficulties to or exceptional and undue hardship upon the owner of such property, to authorize upon an appeal relating to said property a variance from such strict application so as to relieve such difficulties or hardship provided such relief may be granted without substantial detriment to the public good and without substantially impairing the intent and purpose of the zone plan and zoning ordinances."

The other recourse open to the individual affected by a decision of the board of adjustment is to make a plea to the court of common pleas. The court then reviews the decision of the board of adjustment and gives a decision on the point or points in question. The court may reverse or affirm, wholly or partly, or may modify the decision brought up for review.

Violation of the ordinances is a misdemeanor and upon conviction the offender

shall be fined not more than $100 or imprisoned for not more than 10 days, or both. Each day of such violation constitutes a separate offense. The board of commissioners, district attorney, or any property owner may institute injunction, mandamus, abatement, or any other appropriate action or actions to remove such violation or to prohibit proposed violation. Other enforcement remedies may be stipulated in the ordinance.

Three provisions in the section on non-conforming uses should be pointed out. (1) Non-conforming use of part of a building may be extended throughout the building if no structural alteration of the building is needed. (2) The board of county commissioners may provide for termination of non-conforming uses, either by specifying the period or periods in which non-conforming uses shall be required to cease, or by providing a formula or formulae whereby the compulsory termination of a non-conforming use may be so fixed as to allow for recovery or amortization of the investment in the non-conformance. (3) County-owned land or property acquired through tax delinquency proceedings shall be used in conformity with the provisions of the zoning ordinance.

The act follows the Wisconsin procedure (as amended), in that immediately after adoption of the ordinance the zoning commission shall prepare and publish a complete list of all non-conforming uses and occupations existing at the time of adoption. The list shall contain the names and addresses of the owner or owners of the non-conforming use and of any occupant other than the owner, the legal description or descriptions of the land, and the nature and extent of land use. This list must be approved by the board of county commissioners. It is then filed with the county commissioner's clerk, and is corrected yearly.

County commissioners are authorized to appropriate funds for the work out of general county funds and to accept grants of money or service from private, public, state, or federal sources.

The act does not apply to a public utility corporation property if the corporation makes petition to the Pennsylvania Public Utility Commission. A public hearing is to be held in such instance and the commission may decide that "the present or proposed situation of the building in question is reasonably necessary for the convenience or welfare of the public."

Second-Class Township Zoning Act[4]

The second-class township zoning bill grants the board of township supervisors the authority

> "to regulate and restrict by ordinance, the height, number of stories, and size of buildings and other structures and percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes, and may also establish by ordinance and maintain building lines and set back building lines upon any or all public streets, roads, highways, lanes, and alleys."

However, this power shall be suspended in any township or part of a township during any period of time that any zoning ordinance is adopted by the county, regardless of whether or not the township zoned before the county ordinance went into effect. A second restriction is that, if taxpayers whose property valuation as assessed for tax purposes amounts to 51% or more of the total property valuation protest against exercise of zoning powers, such powers shall not be used.

The available type of control is urban in nature. The bill was passed primarily to make control possible in a few second-class townships that approach urban conditions. For example, Hershey is unincorporated, and is in a second-class township (Dauphin County). Under the provisions of this act the township can zone but, if the county zones, then the township ordinance becomes inoperative.

Problems of Rural Zoning

If as much care and thought are given to drafting the individual ordinances as was devoted to wording the zoning enabling act, the results should be satisfactory and successful. Comments received on the enabling act from several authorities on planning and zoning have been favorable. A few minor faults still remain, but in this act many of the major faults found in enabling acts of other states have been overcome. The real test, however, will come in application. Then, no matter how technically correct or desirable the legislation which makes such control and guidance possible, answer must be found to a num-

[4] Laws 1937, No. 504.

ber of important questions. Some of these need further legislation; others are to be answered only by careful study and common sense procedure. Reference to a few of these questions or problems may indicate the usefulness of the act in Pennsylvania.

The first problem which will arise (after an educational program has been put on and some county zoning commission begins work) will no doubt be that of defining district boundaries. Unfortunately, Pennsylvania was not covered by the government survey. As in many eastern and southern states, property lines are described by metes and bounds. Many of the landmarks have been removed, and in many cases a survey is necessary in order to tell just where the property line runs. Needless to say, this offers certain difficulties for enactment and enforcement of a zoning ordinance. However, those difficulties are not insurmountable. A few first-class townships have already adopted ordinances. The method used has been to describe the use district as a certain stipulated width on either or both sides of a known road or street. In some instances districts are described by metes and bounds. This may also be done in county zoning, but it would be more difficult.

Several other possibilities offer remedy or solution to this particular problem. Some counties may be able to use the United States Geological Survey topographical maps, and describe boundaries by reference to specified contour lines. Incidentally, the matter of an adequate base map itself will be a major problem in many counties, for accurate maps are not always available. Not all of the State has been covered by the U.S.G.S. The counties most in need of the type of control rural zoning offers are the ones which have not been mapped. Use of aerial maps would also solve the problem, but again the State has not been covered. The past session of the General Assembly enacted legislation that makes possible the use of a system of plane coordinates developed for Pennsylvania by the United States Coast and Geodetic Survey. Eventually, as time and funds permit, by the use of this system of surveying it will be possible to map and describe districts, properties, or even points, accurately. Until such time, less satisfactory means to the end must be used. Here may be one of the indirect results of the act. When counties zone, use districts must be mapped and described. Lack of adequate maps for zoning should tend to force the issue on surveying and mapping, and that is desirable.

A second major problem rural zoning must overcome is that of delimiting use districts. If there is one word which will describe rural Pennsylvania it is *variation*. The situation is quite different from that in the Lake or Great Plains states. In these other instances a limited use district may well cover thousands of acres, but in Pennsylvania such cannot be the case. Even the upper plateaus or broader valleys vary tremendously. The effect on the formulation of use districts is easy to be seen. In essence, the outcome appears to be that zoning will be done on a smaller scale. A large number of small use districts will be necessary. It is also to be anticipated that savings in the cost of local government by use of this tool cannot be as great here as in states in which large restricted districts can be established.

Regardless of some of these difficulties, and these are by no means all of them, it is not unreasonable to suppose good use can be made of the rural zoning enabling act. Conditions that necessitate such legislation are just as prevalent here as elsewhere. The Land Planning Section of the Resettlement Administration has just completed a study of one of the counties in the Allegheny plateau. The area is cut-over forest, soil productivity is low, climatic conditions are unfavorable to crop production, rural population is declining, and local government costs are mounting. In this particular instance the county could be zoned by topography alone. Were limited use divisions established on all uplands and unlimited districts made of the bottomlands following the streams, and were local government structure and facilities reorganized accordingly, much good could result. Other counties have similar problems. If proper use is made of this enabling legislation, Pennsylvania can take a long step forward toward sound land utilization.

County Planning Act[5]

Accompanying the county zoning law is the act authorizing county planning.[6] This

[5] Laws 1937, No. 434.

[6] The act is the result of the efforts of Mr. F. A.

(Footnote 6 continued on page 317)

act is also an amendment to existing statutes. In 1929 the Legislature established a department of county planning in the one second-class county (Allegheny) and set up the powers and duties of the planning commission. The County Planning Act extends this power to the other counties by authorizing the county commissioners to

"create a county planning commission composed of nine persons who shall be residents of the county, four of whom shall be residents of the city or cities therein and five of whom shall be residents of the boroughs and townships therein . . . ."

Members of the commission serve for six-year terms without compensation, make an annual report to the board of county commissioners, and may employ such technical personnel as the county commissioners provide. As mentioned in the zoning act, the county planning commission may be given all powers and duties of a county zoning commission. The powers of the planning commission are also only advisory, but once a county planning commission is appointed, certain steps are mandatory. All resolutions for location of public buildings, extension, widening, enlargement, ornamentation, or parking of any street, boulevard, parkway, bridge, tunnel, subway or underground road, park, playground, other public buildings, any alteration of county highways or railways, and any intended purchase of land for public use must be submitted to the planning commission before definite action can be undertaken. The county planning commission may also make a map or maps of the county or any portion or portions thereof, including the territory extending three miles beyond the county limits, for the purpose of showing location of proposed highways or any change in existing highways. The commission may also make such recommendations as it sees fit to guide the actions of the county commissioners in dealing with present conditions and future needs and growth of the county, and may also make recommendations to any public authority or any corporation or individual in such counties with reference to the location of any buildings, structure, or works to be erected or constructed by them. The commission must cooperate with political subdivisions within the county in any matters whatsoever which may concern the integrity of the county plan. It is also the duty of every city, borough, town, and township within a county having a county planning commission to file a copy of all maps or plans with the county planning commission. Any city, borough, town, or township authority having power to approve plats must transmit a copy of the proposed plat to the county planning commission.

Provision is made for cooperation between counties or parts of counties for establishing a regional planning commission. The number and qualifications of the members of the regional planning commission are to be determined and agreed upon by the cooperating counties. When such a regional commission is established, a regional plan is to be made for the physical development of the region. Any such regional plan must include "all the elements of physical development that may be locally important and desirable." The planning commissions within the area served by the regional planning commission may delegate any or all their powers and duties to the regional planning commission.

The county planning act is well drafted and is adapted to fit Pennsylvania conditions. Although nothing startling or new is included, it is felt to be complete. What the measure lacks in detail is made up by the provision which makes possible the use of the whole county zoning act in conjunction with the planning act.

Conclusion

Careful study of both the zoning and the planning acts shows that they fit together well. One or the other can operate alone or both can operate as one for planning and zoning a county or a group of counties. This should do much toward coordinating the efforts of the various counties when and as such counties become more planning conscious.

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(Footnote 6 continued from page 316)

Pitkin, Director of the Pennsylvania State Planning Board, Mr. Russel Van Nest Black, Director of the New Jersey State Planning Board (and the Consultant to Pennsylvania State Planning Board) and the Legislative Reference Bureau.

Public Utilities Department

E. W. MOREHOUSE, *Editor*

The Chicago Gas Case

THE introduction of natural gas or a mixture of natural and manufactured gas is usually accompanied by an immediate decrease of rates to the consumer and a hope of subsequent reductions in rates; but the people of Chicago after receiving lower rates when natural gas was introduced in 1931 have recently learned that an attempt is now being made to increase rather than to decrease their rates. On June 26, 1936 the Peoples Gas Light and Coke Company petitioned the Illinois Commerce Commission for an increase in rates amounting to about $3,000,000 annually. On May 21, 1937 the Commission denied the relief sought.[1] In addition to the procedural problems the case[2] involves several interesting points which will be discussed here. They are: (a) obsolescence; (b) depreciation; (c) tax accruals and payments; (d) merchandising; (e) purchases from affiliates.

Obsolescence

Either because of the age of the properties or the substitution of mixed gas for manufactured gas, or a combination of these factors, there was a wide difference in the valuation of certain production facilities. For example, one engineer considered functional depreciation in determining present condition of the plant; the other, it appears, did not, except possibly to a limited extent. The former determined the functional depreciation (to a considerable extent) of production facilities at the stations known as Division and North by the lack of use of these stations and the probability of their future use since the introduction of natural gas[3]. As a result one witness testified that the per cent condition of the production facilities of the stations, after certain eliminations, was 45 and 40%, respectively. The other found nearly 80%. The Commission decided the per cent conditions were 75 and 65%, respectively. A similar problem arose concerning distribution facilities. The question of obsolescence and its effect on accrued depreciation and inclusion in the rate-base will no doubt arise in several other cases in the near future because of the substitution of natural for manufactured gas. Where expensive equipment has been discarded or will be rarely used because of this change, some utilities may find it to their advantage to contend for prudent investment instead of fair value as the rate-base[4].

Depreciation

In addition to the usual clash as to the composite rate of annual depreciation, the question arose as to whether depreciation should be computed on reproduction cost, as contended for by the utility, fair value, or original cost. The Commission found that original cost was the proper basis for the

[1] *In re Peoples Gas Light and Coke Co.*, Case No. 24792; a petition filed on July 24, 1936 requested authority to put the increase in effect immediately. Shortly thereafter this was denied; the utility then filed a bill in the Circuit Court of Cook County to enable it to put the rate increase in effect pending final determination of the issue by the court. The injunction which was issued by the lower court (contrary to the recommendation of a master) was vacated by the Appellate Court. See *Peoples Gas,etc., v. Slattery et al.*, 287 Ill. App. 379 (1936). The matter was again referred to a master who held hearings and then heard the final arguments during the last few days of June, 1937. This was a month after the Commission handed down its final order denying the rate increase. Up to July 20, 1937 the master's report or recommendations had not been made public. In the meantime (December, 1936) the utility was denied a writ of supersedeas by the Supreme Court of Illinois; its appeal from the Appellate Court's decision denying the injunction is still pending. (*Peoples Gas, etc., v. Slattery et al.*, Supreme Court of Illinois, February Term, 1937, Case No. 24003.) There has been no direct appeal from the Commission's final order denying the rate increase.

[2] The comments will relate to the Commission's opinion and a related, though separate, case in the federal courts.

[3] For the years 1932 to 1936 inclusive, the stations were used a total of 333 and 56 hours, respectively.

[4] For a recent example see the Los Angeles Gas case, 289 U. S. 287, 53 Sup. Ct. 637 (1933). The Commission's decision has been discussed in 7 *Journal of Land & Public Utility Economics* 1 (February, 1931). In the Los Angeles case the change was from a mixture of natural and manufactured gas to natural gas.

allowance for annual depreciation; it refused to follow the West case (280 U. S. 234 (1930)) and relied on Mr. Justice Butler's comment in the Lindheimer case (292 U. S. 151 at 176, footnote 27 (1934)) and the Alexandria Water case (163 Va. 512 (1934)). The Company urged that the depreciation rates used in its accounts should be adopted by the Commission in this case because, among other reasons, these rates were substantially the same as those approved by the Department of Internal Revenue for income tax purposes. This was rejected by the Commission[5].

Tax Accruals and Payments

It is not unusual to protest and litigate taxes in Chicago. The Company's practice has been to accrue an estimated amount for taxes each year. The excess of accruals over actual payments made on the court's determination after litigation is then transferred to surplus; substantial amounts were thus transferred in 1934 and 1935. The taxes paid in 1935 were $1,500,000; about $800,000 was withheld because of objections. There was a decrease in the assessed valuation of the Company's property for 1936 which, on the basis of the 1935 rate, would reduce the amount of taxes payable by over $130,000. On the other hand, the Company urged that the 1936 rate (based on information from an undisclosed source) would be higher than in 1935, and that the estimated tax bill for 1936 would be $2,500,000. Considering that this was a petition for a rate increase, that the Company litigated its taxes despite the heavy penalties on amounts wrongfully withheld, and that it has been generally successful in its tax litigation, the Commission in determining the amount available for return allowed $1,750,000 as taxes for 1936[6] and $1,600,000 for the 12 months ending March 31, 1938.

Losses on Merchandising

Whether expenses incident to appliance sales should be considered as a part of the public utility business or a private venture of the Company was a point on which there was a sharp conflict in the testimony.

"The Company claims as new business expense not only an amount for sales promotion but also an amount for what witness Griffith terms sales retention. The Company further claims that the loss on the sale of appliances and all expenses connected therewith should be regarded as a part of the cost of sales promotion or sales retention, and allowed as operating expense in this proceeding."

The Commission disagreed with this theory saying that there was a difference between new business expense and sales after the use of gas has been stimulated.

"Next is the question as to whether the Company should be allowed as a part of its expenses for sales promotion and sales retention the losses and expenses on its appliance sales. These are claimed by the Company on the grounds that appliance sales are made for the purpose of encouraging the use of gas. The Commission finds from the evidence presented, however, that while some appliance sales may be made for the purpose of encouraging the use of gas there are many sales which result merely in the substitution of new ranges or other appliances for old. Losses on such sales cannot properly be included in new business expenses."

Referring to the testimony and exhibits of its witness, Kleinman, and the utility's witness, Griffith, the Commission said:

"In summary, the Commission is of the opinion that the Company's claim for its full sales retention expense and its full losses and expenses incurred in appliance sales is excessive and that an elimination must be made to prevent inequitable charges to the rate payers for such items.

"In determining the elimination to be made the Commission is faced with the fact that it has no information as to the amount expended for sales retention. As to the losses and expenses on appliance sales, the Commission has the information contained in Kleinman Exhibit N-N. Griffith Exhibit 66 is lacking in such information. Witness Griffith testified that he made no transfer of expenses applicable to this activity from the accounts in which they are contained, because in his opinion it would serve no useful purpose to do so. As to the nature of the merchandising account and other accounts in this respect, witness Griffith testified that there is no expense in the appliance sales operation account which is chargeable to any other activity. On the other hand, other accounts (R. 8492) such as commercial bookkeeping, commercial contracts expense, commercial collecting, general service department expense, certain branch office expense, under the general caption 'Commercial Expense,' advertising, salaries of general officers and general office employees, insurance and service annuities contain charges applicable to merchandise sales operations. Thus, there is no question but that some merchandise sales expenses are

[5] See oral arguments before the master, Record pages 10739, 10989. In the Chicago Telephone case the City in its brief urged that depreciation rates approved by the Department of Internal Revenue were evidence that the depreciation rates of Western Electric Co., the manufacturing adjunct of the Bell System, should be lower than those used by the Company. (See *Lindheimer v. Illinois Bell*, 292 U. S. 151 (1934), appellants' brief, p. 313 and appellees' brief, p. 130.)

[6] This resulted in a downward adjustment of about $750,000 from the Company's claim. See also *Consolidated Gas Co. v. Newton*, 267 F. 231 (1920); *In re Union Electric Light & Power Co.*, 17 P.U.R. (N.S.) 337 (1937); and *Manitowoc v. Wisconsin Fuel and Light Co.*, P.U.R. 1927 D 737 (1927).

buried in these accounts and the problem is to determine the amount. The burden of doing so is, of course, upon the Company and this burden has not been sustained. Aside from the burden of proof, the Company as a matter of accounting routine and in conformance with the classification of accounts should segregate the losses and expenses on appliance sales."

* * *

"Since the Company failed to meet its burden of proving the amount which witness Kleinman estimated to be a reasonable overall elimination of the expenses applicable to appliance sales, this Commission is disposed to accept witness Kleinman's elimination for the year 1936. The amount eliminated by witness Kleinman is $738,981.09 in column J of his Exhibit N-N and $193,240.36 in column C. Of these eliminations the Company has agreed to $143,240.36, making the amount eliminated by witness Kleinman, but not eliminated by witness Griffith, $788,981.09. In the opinion of the Commission this entire amount is properly an elimination from the Company's operating expenses for the year 1936. But for the purposes of the determination hereafter to be made, the Commission will use only $500,000 of this amount."[7]

The Commission also commented on the early practice of the Company under which the merchandising operations were conducted by a separate corporation until 1932. It also appeared that a loss was sustained on these operations from 1928 to 1932, after which date the operations were merged. Various courts and commissions have passed on the question of segregating the merchandising and utility business but in none of these cases has the problem received such thorough treatment.[8]

Purchases from Affiliates

The Peoples Gas Light and Coke Co. purchases natural gas from the Chicago District Pipeline Company. The purchaser indirectly controls 80% of the stock of the seller. The seller in turn purchases its gas from the Natural Gas Pipe Line Co. The utility whose rates were involved in the case owns indirectly about 27% of the stock of the Natural Gas Pipe Line Co. In a *separate* proceeding the Commission issued a citation against the Chicago District Pipe Line Co., to appear and show cause why its rates (then on file with the Commission) should not be reduced and an order against the Natural Gas Pipe Line Co., to disclose certain costs in connection with its sales of gas to the Chicago District Pipe Line Co. The Natural Gas Co's. petition for an injunction to restrain enforcement of the Commission's order was denied.[9] These citations were issued pursuant to Sec. 8a of the Illinois Public Utilities Act which provides, among other things, for jurisdiction over affiliates having transactions with public utilities subject to the act. Affiliated interests are defined so as to include those having 10% or more of the stock of a public utility. Even if the Commission does not prevail in its order which refused an increase in rates, it may still institute an investigation into the profits made on the sale of natural gas to the Peoples Gas Light and Coke Co., in order to determine if the entire sum paid by it to the Chicago District Pipe Line Co. should be allowed as an operating expense.

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*Commission**

[7] For the 12 months ending March 31, 1938, the deduction was fixed at $200,000.

[8] *Idaho Power Co. v. Thompson*, 19 F. 547 (1927); *Consolidated Gas Co. v. Newton*, 267 F. 231 (1920); *Department of Public Service of Washington v. Pacific Power and Light Co.*, 13 P.U.R. (N.S.) 187 (1936); *In re Laclede Gas Light Co.*, 7 P.U.R. (N.S.) 277 (1934); *Customers v. Lowell Gas Light Co.*, 10 P.U.R. (N.S.) 111 (1935); *Public Utility Commission v. Bangor Hydro-Electric Co.*, 15 P.U.R. (N.S.) 49 (1935); *In re Accounting for Merchandise and Appliance Sales*, P.U.R. 1930 E 204 (1930); *Central Hudson G. and E. Co.*, P.U.R. 1932 B 165 (1932); *Luckey Platt & Co. v. Central Hudson G. and E. Co.*, P.U.R. 1932 B 165 (1932); *In re Potomac Edison Co.*, 7 P.U.R. (N.S.) 135 (1935).

[9] *Natural Gas Pipe Line Co. v. Slatterly et al.*, (D. C. N.D. Ill., Equity No. 15562) decided July 2, 1937. Notice of appeal to the U. S. Supreme Court has been filed.

* The writer did not participate in this case in any capacity. The views expressed are his personal ones.

Public Utility Financing in the Second Quarter of 1937

THE uncertainty in the money market which was noted in the first quarter of this year[1] was largely responsible for the decline in public utility security flotations during the period under review. For the second quarter of 1937 utility financing totaled $217,403,700, a decline of 44% from the preceding period and the lowest quarterly volume since the second three months' period of 1935. The second

[1] See 13 *Journal of Land & Public Utility Economics* 213-215 (May, 1937).

quarter's total was 65% below that for the same period of 1936. In April of the current year the volume dropped to only $9,500,000, the smallest monthly total since January, 1935. Some improvement was made in May and a very substantial increase occurred in June when several large, high grade issues were marketed.

Although refunding operations continued to dominate public utility financing, the percentage of the total devoted to that purpose in the second quarter was definitely lower than in preceding periods of the current era of favorable interest rates. For the present quarter 84.4% of the total represented refunding capital, whereas in 1935 and for all quarters of 1936 the ratio ranged from 93% to 96%.[2] In view of the reduced total volume for the second quarter, the lower ratio for refunding capital may be more fortuitous than significant. Results in future periods will be awaited with interest, however, because a continuation of business recovery will undoubtedly create an increasing demand for new capital in the public service industries.

Seventeen issues comprised the total financing for the second quarter, according to compilations made by the *Commercial & Financial Chronicle*. Of the 17 issues, 14 were long-term debts, two were short-term debts, and one was a preferred stock issue. Five of the long-term debt issues and the one stock issue were placed privately. The 17 issues ranged in size from $607,700 to $80,000,000, with an average of $12,790,000 and a median of $4,125,000.

[2] See footnote 3, *infra*.

Long-Term Debt Financing. The 14 long-term debt issues totaled $201,046,000. The five issues, totaling $10,075,000, placed privately are listed in Table I. Two of the long-term issues bore serial maturities; these were $750,000 Los Angeles Railway Corporation 5% equipment trust obligations sold privately in May and $3,420,000, Buffalo Niagara Electric Corporation serial debentures, Series A, B and C, offered at 99.55 (average for all maturities) in June.

Eight long-term debt issues which were offered publicly are analyzed in Table II. In that tabulation the $45,000,000 issue of Southern Bell Telephone and Telegraph Company is listed as $42,500,000, since the balance of the bonds were reserved for sale to the Trustee of Pension Fund on or before July 1, 1937 at 94½ without underwriting discounts or commissions.

It may be seen from Table II that again in this quarter underwriters' commissions are most frequently 2%, especially on larger issues. Incidental expenses show a wide fluctuation from slightly more than ¼ of 1% to nearly 2% but the weighted average is in line with those of earlier periods. The average rate of 3.78% for cost of money compares with 3.61% for the preceding quarter. It is also slightly above the average cost found for the last two quarters of 1936, but it is lower than the comparable figures for the first two quarters of 1936.

Other Financing. The two short-term debt issues consisted of $750,000 Central Ohio Light & Power Company three-year 4½% convertible secured notes offered at 99¼ in June and $15,000,000 Union Electric Com-

TABLE I. SUMMARY OF LONG-TERM DEBT ISSUES PLACED PRIVATELY, SECOND QUARTER, 1937

Company and Issue	Principal Amount	Coupon Rate	Maturity Date	Month of Sale	Price
New Haven Water Company Gen. & Ref. Mtge., "A"	$ 4,125,000	3¼%	1962	June	*
Pennsylvania Pr. Company First Mtge.	2,000,000	4	1961	May	100.00
Central Illinois Light Co. First & Consol. Mtge.	2,000,000	3½	1966	May	100.00
Southern Indiana G. & E. Co. First Mtge.	1,200,000	3.35	1961	May	100.00
Los Angeles Railway Corp. Equipment Trust, "A"	750,000	5	1937/45	May	*
Total	$10,075,000				

*Not reported.

TABLE II. SUMMARY AND ANALYSIS OF LONG-TERM DEBT ISSUES OFFERED PUBLICLY, (EXCLUSIVE OF SERIAL MATURITIES), SECOND QUARTER, 1937

Company and Issue	Coupon Rate	Principal Amount	Maturity Date	Month of Offering	Offering Price*	Offering Yield	Underwriters' Commissions*	Proceeds to Company*	Estimated Incidental Expenses*	Net Proceeds*	Cost to Company†
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
	%				%	%	%	%	%	%	%
Union Electric Co. of Mo. First Mtge. & Coll. Trust	3¾	$ 80,000,000	7-1-62	June	100.00	3.75	2.00	98.00	0.48‡	97.52	3.91
Southern Bell Tel. & Tel. Co. 25 Year Debentures	3¼	42,500,000	4-1-62	May	96.50	3.46	2.00	94.50	0.29	94.21	3.60
New York Telephone Co. Ref. Mtge., Series B	3¼	25,000,000	7-1-67	June	100.00	3.25	2.00	98.00	0.96	97.04	3.41
Buffalo Niagara Elec. Corp. Gen. & Ref. Mtge., Series C	3½	17,029,000	6-1-67	June	102.00	3.38	2.00	100.00	1.21†	98.79	3.57
Cincinnati Gas & Elec. Co. First Mtge.	3½	10,000,000	6-1-67	June	102.50	3.37	2.00	100.50	0.71	99.79	3.51
Railway Equip. & Realty Co., Ltd. First Mtge.	4½	5,000,000	3-1-49	April	98.50	4.67	3.25	95.25	1.10	94.15	5.16
Marion Reserve Power Co. First Mtge.	4½	4,500,000	4-1-52	April	98.00	4.69	3.00	95.00	1.90	93.10	5.17
San Jose Water Works First Mtge., Series A	3¾	1,022,000	12-1-61	May	100.00	3.75	2.00	98.00	0.99	97.01	3.94
Weighted Averages	3.57				99.43	3.61	2.06	97.37	0.64	96.73	3.78
Totals§											

* Expressed as a percentage of the principal amount shown in Column (C).
† Computed on a bond yield basis using net proceeds per Column (K).
‡ Pro rata share of total expenses on two issues covered by same prospectus.
§ Totals, which represent summation of actual amounts, are: Principal Amount, $185,051,000; Offering Price, $183,989,080; Underwriters' Commissions, $3,808,520; Proceeds to Company, $180,180,560; Estimated Incidental Expenses, $1,176,208; Net Proceeds, $179,004,352.

pany of Missouri 3% notes maturing July 1, 1942, offered at 100½ in June.

The Central Ohio notes furnished a yield of 4.77% on the offering price. Data adequate to compute cost of money on this issue are not available; commissions were 2½%, but expenses were not completely shown. The Union Electric notes gave a yield of 2.89% to the investor. Underwriters' commissions were ⅝ of 1% and expenses, prorated, were 48/100 of 1%, leaving net proceeds of 99.15% costing 3.19%.

The one stock issue consisted of 5,900 shares of Pennsylvania Power Company $6 no-par preferred which were sold privately in May at $103 per share.

Index Number of Volume

The index numbers[3] of volume of public utility financing for the second quarter of 1937 are as follows:

Period*	Total Capital	New Capital	Refunding Capital
April	5.79	2.02	22.05
May	32.06	5.24	147.89
June	94.71	18.27	424.76
Second Quarter	44.19	8.51	198.23

*The bases for these index numbers are as follows: monthly average, 1926, equals 100 for the monthly series; quarterly average, 1926, equals 100 for the quarterly series; and the year's total for 1926 equals 100 for the annual series.

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[3] For a description of the index and back figures through 1919 see "The Volume of Public Utility Financing, 1919-1935," 11 *Journal of Land & Public Utility Economics* 352-356 (November, 1935); 12 *Ibid.* 91-94 (February, 1936); 12 *Ibid.* 208-210 (May, 1936); 12 *Ibid.* 320-323 (Aug., 1936); 12 *Ibid.* 431-433 (November, 1936); 13 *Ibid.* 71-77 (February, 1937); and 13 *Ibid.* 213-215 (May, 1937).

Pennsylvania's New Utility Laws

PENNSYLVANIA'S new utility legislation is embodied in two acts of the General Assembly. The first pertains only to the organization of the state commission itself and has popularly been styled the "Ripper Bill" because of the manner in which it ripped out the old commission and established the new one[1]. The second act is known as the Public Utility Law[2]. It repeals practically all previous legislation relating

[1] Laws 1937, No. 43.

[2] Laws 1937, No. 286.

to public utility regulation and provides in its place a new and comprehensive code governing operations of utility companies. These two acts together effect in Pennsylvania the first comprehensive reorganization of modern public utility regulation, which dates back to the Public Service Company Law of 1913[3].

The New Public Utility Commission

Although the Ripper Bill was the more spectacular of the two new laws, it did not introduce any significant innovations in commission organization. The new Public Utility Commission replaces the former Public Service Commission as of April 1, 1937, but it is composed of only five, instead of the previous seven, commissioners. This reduction in size is in line with changes in other states during the past six years.

As before, the members are appointed by the Governor, by and with consent of the Senate, but the new law is more explicit in specifying ⅔ of all Senate members. The terms of 10 years and the salaries of $10,500 for the chairman and $10,000 for other members were also retained; they are among the longest terms and highest salaries of all state commissioners.

Other provisions concerning the designation and powers of the Commission's chairman, qualifications of commissioners and employees, and the method of filling a vacancy or removing a commissioner are but slightly changed and embrace the usual provisions found in commission laws. In line with recent trends in commission organization, provision is made for appointment of a more adequate legal staff under the direction of the newly created office of counsel to the Commission.

The New Public Utility Law

Although passage of the new Public Utility Law was less ostentatious than adoption of the Ripper Bill, it unquestionably was the more significant, for it introduces a new epoch in regulation of Pennsylvania utilities. The new law is a culmination of many years of effort to bring about regulatory reform. It embraces practically all major regulatory innovations introduced by other states in recent years and adds a few significant changes of its own.

Extension of Jurisdiction

Jurisdiction is granted to the Pennsylvania Commission for the first time over contract carriers by motor vehicle and over brokers. Contract carriers are now required to obtain permits,[4] their contracts must be reduced to writing and filed with the Commission, and the Commission is empowered to prescribe requirements governing their operations, including minimum rates. Similarly, brokers must be licensed by the Commission and operate in accordance with its rules and regulations on such matters as services and financial responsibility.

Operations of municipal utilities outside their corporate limits are also placed under full control of the Commission. The previous requirement that *all* municipal utilities submit annual reports to the Commission is retained and in addition such utilities are subject to comprehensive depreciation regulation (p. 325 below).

The Commission's jurisdiction is restricted by the new law in two respects, both of which are apparently in deference to federal agencies. Municipalities are no longer required to obtain a certificate from the Commission in order to acquire, construct, or begin to operate facilities to render service which is already being rendered by a utility company *within* their corporate limits. Similarly, certificate requirements, or any other Commission controls, do not apply to cooperative associations, which are positively excluded from the definition of a public utility. In addition, the law protects cooperatives from encroachment upon their territory by privately owned utilities (see p. 325 below).

Rates and Rate Making

On this topic we find some of the most sweeping changes contained in the new law. Correcting what the Governor considered to be a deficiency in the 1933 amendments,[5] the new law prohibits proposed changes in rates from becoming effective during a suspension period in which the Commission is

[3] The Legislature also adopted a rural electrification act (Laws 1937, No. 389) along the lines recommended by REA.

[4] The usual legislative standards for granting a contract carrier permit (or broker's license) together with a "grandfather clause" are contained in the act.

[5] Laws 1933, No. 333, §§ 2, 7. Former Governor Pinchot's statements will be found at the end of this act.

investigating their reasonableness, unless a temporary rate is established. Furthermore, the notice period for such rate changes has been extended from 30 to 60 days and the period during which the Commission may suspend the effectiveness of the changes has been extended from a maximum of 180 days beyond the 30-day notice period to a maximum of 9 months beyond the 60-day notice period.

The Commission may also prescribe a "temporary rate" to be charged pending final determination of a rate proceeding brought either upon its own motion or upon complaint. Apparently modeled in part after the New York provision,[6] the law states that the temporary rates

> "shall be sufficient to provide a return of not less than five per centum upon the original cost less accrued depreciation of the physical property (when first devoted to public use) of such public utility used and useful in the public service . . . "

In case the verified reports of the company to the Commission do not show this original cost less accrued depreciation the Commission may estimate it for the purpose of fixing temporary rates.

The Pennsylvania law goes even farther. If the company does not have continuing property records,

> "then the commission, after reasonable notice and hearing, may establish temporary rates which shall be sufficient to provide a return of not less than an amount equal to the operating income for the year ending December thirty-first, one thousand nine hundred thirty-five, or such other subsequent year as the commission may deem proper, to be determined on the basis of data appearing in the annual report of such public utility to the commissiom for the year one thousand nine hundred thirty-five, or such other subsequent year as the commission may deem proper, plus or minus such return as the commission may prescribe from time to time upon such net changes of the physical property as are reported to and approved for rate-making purposes by the commission. In determining the net changes of the physical property, the commission may, in its discretion, deduct from gross additions to such physical property, the amount charged to operating expenses for depreciation, or in lieu thereof, it may determine such net changes by deducting retirements from the gross additions: Provided, That the commission, in determining the basis for temporary rates, may make such adjustments in the annual report data as may in the judgment of the commission be necessary and proper."

Furthermore, such temporary rates may be prescribed "every month or at any other interval;" and if the Commission is of the opinion that a company is earning in excess of a fair return, it may prescribe temporary rates to produce a fair return "for a trial period of at least six months, which trial period may be extended for one additional period of six months," with the rates becoming permanent at the end of the trial period unless the company complains, in which case the temporary rates are to remain in effect pending final determination of the issues.[7]

Other important provisions on rates include: (1) a new requirement that "after notice of service conditions" public utilities shall bill customers on the most advantageous of optional rates;"[8] (2) a prohibition, in place of previous express permission, against requiring advance payments, or minimum payments, or deposits except as the Commission *may* by regulation or order *permit*, with the new provision that deposits shall be returned with interest after payment of undisputed bills over a period of 12 consecutive months; (3) retention of the section which permits a public utility to establish a sliding scale of rates, but with new clauses which except a common carrier, broaden the section so as to permit any method of automatic adjustment of rates that the Commission approves, and empower the Commission to prescribe a mandatory system of automatic rate adjustments; (4) retention of the long-and-short-haul clause, but permitting the Commission to authorize exceptions; (5) a clause enabling the Commission to investigate cost of production or generation of products distributed by a utility which obtains them from another source; (6) a new section which unquestionably places the burden of proof in any rate proceeding upon the company; and (7) an extension of the section on refunds of overcharges to empower the Commission to require refunds not only of the

[6] New York, Laws 1934, c. 287. This law was sustained by the New York Court of Appeals in *Bronx Gas & Elec. Co. v. Maltbie*, 14 P.U.R. (NS) 337 (1936).

[7] P.U.R. Executive Information Service, Letter No. 185 (July 16, 1937) reports that the Pennsylvania Commission has ordered a temporary rate cut of 10% in the rates of Solar Electric Co. (Brookville, Pa.) with a view to testing the validity of the law.

A provision designed to avoid constitutional difficulties permits a utility to recover by a temporary rate increase any loss caused by temporary rates being lower than finally determined rates.

[8] The law does not explain what this ambiguous phrase means, i. e., who is to give notice or to whom it is to be given.

overcharges themselves but also interest on them at the legal rate—and the Commission need not find that the rate complained of was "extortionate or oppressive."

Service and Facilities

A new section of the law concerns a current, controversial issue regarding rural electric service. If a cooperative association has been organized and has filed with the Commission a map of its proposed territory, together with a verified statement showing that a majority of the prospective customers in the area are included in the project, then, according to the new act,

> ". . . no public utility shall begin the construction or installation of any new plant or system, or the construction or installation of any extension, improvement, or addition to its existing plant or system for furnishing light or power service within said territory, until the expiration of six months from the date of the filing of such map and statement . . . "

Furthermore, if such a cooperative has given the Commission written notice of a loan agreement with any federal agency, no public utility shall enter the cooperative's territory "until the expiration of twelve months from the date of said loan agreement."[9]

Influence of a recent New York provision[10] is seen in a section empowering the Commission to direct that any public utility practice public letting of contracts under its regulations and that any contract be awarded to the "lowest responsible bidder," but any such public utility may participate as a bidder.[11]

Accounting and Budgetary Matters

In this aspect of regulation, too, the Pennsylvania Commission's powers were materially strengthened and extended. The Commission may establish systems of accounts "(including cost finding procedures)" to correspond as far as possible to systems prescribed by federal commissions; and as a part of these accounting systems the Commission may require continuing property records of specified "property units," and require them to be maintained "in such manner as to show currently the original cost of such property when first devoted to the public service, and the reserve accumulated to provide for the depreciation thereof." If these requirements, which follow those adopted in New York in 1934,[12] are put into effective operation they should materially expedite rate proceedings.

The new law goes much farther on the subject of depreciation. Every public utility *is required* to charge for annual depreciation expense proper and reasonable sums "based upon the average estimated life of each of the several units or classes of depreciable property." This apparently does not rule out the sinking-fund method for charging annual depreciation expense, but the straight-line method seems to be the only practicable one which this provision leaves available. Furthermore, the Commission may require companies to file statements setting forth the details supporting their computation of annual depreciation expense, and if the latter seems unreasonable the Commission may prescribe the reasonable and proper amount, giving consideration to past experience in accumulating a reserve, to the retirements actually made, and to other relevant factors. However, the Commission is not bound in a rate proceeding by the annual depreciation expense charged pursuant to the foregoing provisions but may consider "such other factors as may be relevant." Obviously, this depreciation section was considerably influenced by Wisconsin precedent.[13]

Apparently the experience of the Washington and Oregon commissions with budgetary control over utilities was also drawn upon by the Pennsylvania law.[14] A new section empowers the Commission to require any class of public utilities except common carriers to file proposed budgets covering estimated payments for officers'

[9] These are apparently the same provisions as in the Wisconsin Commission general order 2-U-965, March 20, 1936 (14 P.U.R. (NS) 25), and August 27, 1936 (15 P.U.R. (NS) 364). Substantially these provisions were embodied in Wis. Laws 1937, c. 17.

[10] New York, Laws 1935, c. 13.

[11] More comprehensive and clear provisions govern other service matters. For example, a company must acquire a certificate of public convenience not only in order to "obtain" any additional right, power, franchise or privilege (the previous provision), but also "to begin the exercise" of them and "to dissolve, or to abandon or surrender" them in whole or in part. Other sections include the usual requirements as to adequate facilities and service standards, common carriers, and grade crossing protection.

[12] New York, Laws 1934, c. 287.

[13] Wisconsin, Laws 1931, c. 183, § 3.

[14] Washington, Laws 1933, c. 165, § 10; Oregon, Laws 1933, c. 441, § 1.

salaries, donations, advertising, lobbying expenses, entertainment, political contributions, expenditures, and major contracts for the sale or purchase of facilities, and payments to affiliated interests for service. Unreasonable items may be rejected, in which case no further expenditures may be made for them and they may not be allowed as an operating expense or in the rate-base unless their propriety is later established. However, any budget or supplemental budget filed with the Commission shall not bar or stop it from determining the reasonableness of expenditures in a rate or other proceeding.

Securities and Obligations

Substantial improvement in the regulatory law on this subject was made by the Pennsylvania General Assembly in 1933,[15] and the new law carries forward this improvement. Before a utility may issue securities it must now obtain from the Commission a notice of registration of its application known as a "Securities Certificate"—a provision which replaces the 1933 requirement that the Commission issue a certificate of public convenience. Whereas the old law exempted securities payable in periods of less than 12 months (except for requiring a written statement of them to be filed), the new provision is more flexible by empowering the Commission by regulation or order to exempt "any class of securities."

A broader provision in the new law requires registration of a securities certificate before a utility shall "assume primary or contingent liability" not only for payment of principal and interest of any securities (the previous provision) but also for payment of "any dividends upon any stocks." Of course, this provision does not apply to consolidation or merger cases, which are governed by requirements of a certificate of public convenience. The latter type of certificate now is also required before a utility may acquire 5% or more of the voting capital stock of any corporation.

It is important to note that unlike the old law, which stated the various purposes for which securities could be issued, the new law leaves this matter to the discretion of the Commission by providing that the securities certificate shall be registered or rejected according as the issuance or assumption of securities "for the purpose therein proposed" is or is not necessary or proper "for the present and probable future capital needs of the public utility." The law further states that the Commission may consider the relation of each class of securities to the total, the nature of the company's business, its credit, future prospects, "and other relevant matters." Under these general provisions the discretionary power of the Commission might be construed to prevent overcapitalization from a practice which has become quite troublesome—namely, the issuance of securities to reimburse a utility company's treasury for moneys collected out of income through depreciation or amortization charges and spent for capital purposes. Although such depreciation and amortization funds are set aside out of income, they are designed to maintain a company's investment which has already been subject to security issues, and they therefore should not properly serve as the basis for further security issues. Yet, many state laws, including the former Pennsylvania provision, have permitted securities to be issued, without qualification, for reimbursement of moneys expended from income for capital purposes.

Relations with Affiliated Interests

Control in this field was first granted the Pennsylvania Commission in 1933.[16] The new law strengthens and enlarges the scope of that control. Whereas previously an "affiliated interest" was either a company which owned or controlled a 10% interest in the voting capital stock of a Pennsylvania utility, or a 10% owned or controlled subsidiary company of such a holding company, under the new provisions such companies would be affiliated interests on the basis of a 5% stock ownership or control. Furthermore, the definition was extended to include (1) companies in which a Pennsylvania utility directly or indirectly owns or controls 5% or more of the voting capital stock; (2) any person or company which either alone or in conjunction with others exercises a substantial influence over a Pennsylvania utility with the result that "there is an absence of free and equal bargaining powers;" and (3) any director, officer, or employee of an affiliated interest, as above defined.

[15] Laws 1933, No. 333, §§ 1, 4.

[16] Laws 1933, No. 333, § 5.

As before, service contracts of public utility companies with affiliated interests must be filed with the Commission, which is empowered to investigate them and pass upon their reasonableness. In all such investigations the burden of proof is clearly upon the utility company, and if any amounts are found by the Commission to be unreasonable they are to be stricken from the operating expense or capital accounts and are not to be considered in any proceeding. Any other transactions, including donations, involving affiliated interests must have the approval of the Commission, which now may require contracts to be in writing and may specify the condition that the affiliated interest supply cost data concerning them. According to another new provision in the act, Commission approval of contracts with affiliated interests does not bind the Commission to allow unreasonable payments in the process of fixing rates.

Assessment of Regulatory Expenses upon Public Utilities

The Commission's funds are to continue to be controlled through regular legislative appropriations from the State's general revenue, but hereafter the State is to be reimbursed for them by assessments upon the utilities under jurisdiction of the Commission. The only Commission expenses which are not to be paid by the utilities are those attributable to regulation of municipal corporations, and a part of the equipment and office space expenditures.

The utilities are to pay the Commission's expenses according to the combination method whereby special assessments are levied upon an individual company for the costs of making a special investigation or appraisal of, or rendering engineering or accounting service, to that company, and all expenses (except those mentioned above) not assessed in this manner are prorated and assessed upon *all* companies under the Commission's jurisdiction "upon such reasonable basis, and in such equitable amounts, and at such times, and in such manner as the commission shall, by regulation or order, prescribe . . . " A clause limits the amount charged to and paid by the company during any one calendar year to not more than 1% of the company's gross operating revenues during the next preceding fiscal year.

The act expressly states that the purpose is to require the several "groups"[17] of companies subject to its provisions each to contribute by way of assessments sufficient funds to pay for the "reasonable cost of regulating the respective groups." To this end the Commission must maintain records of the costs it incurs and of the manner in which the special and general assessments are computed, with such records to be open to inspection by all interested parties. The Commission's computations are to be considered prima facie correct and, if challenged, the burden of proof is upon the company.[18]

Other Provisions

The section added to the statutes in 1933[19] governing manufacture, sale, or lease of appliances by public utilities was retained in the new law. This makes unlawful any disruption of service for default in payment for appliances, or any application of deposits or other moneys of a customer to the purchase price or rental of appliances. Also, the companies are required to maintain separate and accurate accounts for their appliance business.

The act is rounded out by comprehensive articles on general provisions and powers of the Commission, penalties, and legal procedure before the Commission and on appeal. It would seem appropriate to leave the latter subject for a Philadelphia lawyer to review.

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[17] These "group" provisions were apparently influenced by the recent 5-4 U. S. Supreme Court decision in *Great Northern Railway Company v. Washington* (17 P.U.R.(NS) 475), decided February 1, 1937, wherein the majority ruled that the burden was upon the Washington Department to show that sums exacted from the railroad group for their regulation and supervision "do not exceed what is reasonably needed for the service rendered."

[18] In addition to the special and general assessments the law provides for a number of statutory fees for service rendered by the Commission (such as copying service and filing certain applications), and for testing appliances for public utilities. All assessment costs and fees are to be collected by the Commission and paid into the State's general fund.

[19] Laws 1933, No. 333, § 6.

Book Review Department

Urban Land

Hegemann, Werner. CITY PLANNING-HOUSING. Vol. I, Historical and Sociological, pp. xix, 257; Vol. II, Political Economy and Civic Art, pp. xxii, 172. *New York: Architectural Book Publishing Co., 1936-1937. $3.75 each volume.*

These volumes, put together by faithful friends after the untimely death of the author, reflect a wide-ranging mind and a passionate spirit. They make us feel doubly the tragedy that cut off in his prime a planning expert who had braved police prosecution for his housing activities (for "incitement of class hatred"), yet who as biographer and scholar had acquired a rich background in American and European political and social thought.

As they stand, these volumes are a collection of essays ranging from considerations of "political economy" to "civic art." The utter inadequacy of the standards set by the New York Zoning Resolution of 1916 have been exposed before; yet Dr. Hegemann's passionate denunciation (Chapter XIII) has the power to arouse new excitement. The National Planning Board (*Final Report*, p. 19) and others have suggested that planning has its roots in American thought and action; Dr. Hegemann's recital of the words and deeds of Washington, Hamilton, and Jefferson has the freshness which a foreigner's point of view may bring, if he has a seeing eye and roving mind. (See Chapter VII, on Lincoln, Emerson, and Marx as Homebuilders of the XIX Century.) I am personally grateful for his attack on the dogma that H. H. Richardson was our great indigenous architect whose promise was thwarted by the World's Fair of '93 (Chapter XXVI). I have enjoyed the brilliant paeans of Mumford, but I have never been able to understand their connection with those buildings of Richardson that I have had the opportunity of seeing.

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Land Resources

Brunner, Edmund de S. and Lorge, Irving. RURAL TRENDS IN DEPRESSION YEARS. *New York: Columbia University Press, 1937. pp. xvi, 387. $3.25.*

This monograph is the most important study in existence concerning the effects of the depression upon rural life. It gives the results of the third survey, at six-year intervals, which the senior author has directed of 140 village-centered American agricultural communities.[1] These works are indispensable for every serious student of rural life. Ever since the announcement of the third survey, the present volume has been eagerly awaited. The report amply justifies expectations, and the authors are to be complimented for their speed in making available the results of the survey.

An introduction states the two purposes of the report: (1) "... to present the results of a study of changes in rural social life in the United States between the years 1930 and 1936 ..."; and (2) "... to trace the life story of 140 village-centered agricultural communities through another, or third, phase of their development and history ..."

The estimates of the field workers indicate a rapid growth of population in the villages during the depression, an increase brought about in the Middle Atlantic states by migration from urban centers, in the South by the influx of displaced croppers and others from the open country in search of relief benefits, and in the Far West by movement of people from other geographic areas. Migration also increased the number of farmers in the trade areas of the villages, a relocation of population which added to the density of settlement on the "cheap, poor, vacated, or submarginal" lands.

The treatment of village-country relations is very brief. The chief conclusion

[1] *American Villages* (1926) by C. Luther Fry; *American Agricultural Villages* (1927) by Edmund de S. Brunner, Gwendolyn S. Hughes, and Marjorie Patten; and *Village Communities* (1927) by Edmund de S. Brunner summarized the results of the original study made in 1924. A resurvey of the same villages, made six years later, was published as *Rural Social Trends* (1933) by Edmund de S. Brunner and John H. Kolb.

advanced is that "the village or town center has become the capital of rural America." Thus, Dr. Brunner and his associates affirm that Dr. Galpin's "rurban community" has been achieved. The evidence for this is not conclusive. Very little of the data presented is indicative of such a simplification in the general pattern of rural organization. Rather the data in this and other studies seem to reveal a trend toward greater differentiation, a more complex social system, a structural pattern in which the individual farm family divides its loyalty and contacts among a variety of trade centers, including the crossroads store, several hamlets, a village or two, a town, and even a metropolitan center.

The difficult subject of social organizations receives a thorough treatment. Many of the points developed in this chapter illustrate the now timely point that land utilization represents an adjustment between human and natural resources, an adjustment which is largely dependent upon the nature of the social organizations available to direct the activities of the people. The increasing devotion of land resources to park areas, recreation grounds, facilities for hunting, fishing, etc., is one of the most gratifying trends reported in the volume. Few will regret that informal activities, resulting from this development, have replaced the stilted social organizations of an earlier day.

A final chapter, "Some Implications," is an attempt toward policy building. Opinions will differ, but the reviewer believes the preceding chapters are of more importance for stimulating a program of action.

It is to be hoped that these surveys will be repeated again and again, because they constitute the most important body of knowledge in existence relating to rural-life trends. Because they are so important, they should be continued with the greatest care possible. Probably there should be a revision in the method of sampling. Retaining the same villages from one survey to another gives the data an appearance of comparability that is not justified. It results in comparing villages of 1924 with larger villages and towns in 1930, and with still larger villages and towns in 1936. Furthermore, the regional distribution of the villages needs to be revised so that the data will be truly representative of the situation in the United States as a whole.

Well written, factual, timely, and the third in a series of important surveys, this volume should be widely circulated among rural-minded persons throughout the land.

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Public Utilities

Welch, Francis X. Cases on Public Utility Regulation. *Washington, D. C.: Public Utility Reports, Inc., 1936. pp. xvii, 959.*

Intended, according to Mr. Welch's "Preface to the Second Edition," as "a comprehensive treatise for current instruction, embracing not only the historical growth of the law but its present status," this volume appears to be a real and necessary contribution to the study of the rapidly growing law of public utility regulation.

The editor has adopted for the form of this case book a combination of selected opinions or excerpts from opinions, and voluminous notes and annotations. The volume itself is divided into eight parts of approximately equal length dealing with "The Public Utility Status"; "The Right to Serve as a Public Utility"; "Utility Obligations as to Service"; "The Obligation of a Utility as to Rates"; "Valuation"; "Discrimination in Utility Rates"; "Regulation by Commissions"; and "Intercorporate Relations" in that order. Each part is subdivided into chapters appropriately titled.

While it is undoubtedly true that the editor of any case book has a difficult task in arranging the material to be included and also that there is no fixed rule by which it can be determined whether a proper arrangement has been made, some criticism might be directed in the case of this text at placing the part entitled "Regulation by Commissions" with its discussion of the regulatory powers of the state and federal governments, the conflict of authority between the two, and practice and procedure before the commission and on appeal at page 673 of the text, after sections which deal with the application of the regulatory power to specific situations.

The notes and annotations in this case book will undoubtedly be of great value both to instructors and students, not only because of the large number of citations and references to articles in law reviews and

other periodicals and to annotations in reference works, but also because the editor has, in these notes, raised a large number of extremely important and highly valuable questions for discussion.

It does appear, however, that despite the broad and comprehensive treatment of the law in the field, the case book, both in the opinions presented and in the notes, fails to raise or mention several extremely important questions. Although there are cases and discussions on the problem of competition among utilities and a discussion of regulation by means of the application of the doctrine of "regulated monopoly," there is no reference to the extremely important group of related cases—namely, those involving competition between the public motor carrier and the railroad. It further appears that more emphasis should have been placed on the fact that the answer to a large number of questions of public utility regulatory law depends almost entirely upon statutory construction and that, although the state regulatory acts follow a broad general pattern, there is sufficient variance among them to make a careful study of any given state regulatory statute not only necessary but absolutely indispensable. In this connection it might be pointed out also that, although a section is devoted to "The Requirement of a Reasonable Rate," no mention is made of the fact that practically every state public utility regulatory act requires that a utility render service at a reasonable rate and without unreasonable or arbitrary discrimination. A related question not raised in this case book concerns the duty of a public utility having a complex and intricate rate schedule to place its customers on the most favorable rate or in the most favorable rate class, nor is there any mention of the cases holding that in the first instance a public utility has the right to fix rates and that commission control arises only after rates have been fixed initially by a public utility.

Other questions which the case book fails to raise and which seem to be currently important are the treatment of property leased from another public utility in determining the rate-base of a public utility and the treatment of the item of taxes in determining operating expenses in fixing the rates of public utilities, especially where (as in Illinois) a large portion of the amount of taxes claimed by the taxing authority is paid under protest by the utility company and suit begun to have that portion of the taxes set aside as invalid.

In the section dealing with judicial review there is no mention of the question of the proper time for application for judicial review of commission action. This question is an extremely pertinent one since the passage of the Johnson Act which is referred to in the case book.

In the chapter entitled "Overheads—'Going' Value and Other Intangibles" no reference is made to *Columbus Gas and Fuel Co.* v. *Public Utilities Commission*, 292 U. S. 398, *Dayton Power & Light Co.* v. *Public Utilities Commission*, 292 U. S. 290 and, although a portion of the opinion in *St. Joseph Stockyards Co.* v. *U. S.*, 298 U. S. 38, is included in the section on "Practice and Procedure before Commissions" that portion of the opinion dealing with going value is not included. These omissions are striking inasmuch as the three cases last referred to constitute the latest pronouncements of the Supreme Court of the United States on the subject of "going" value.

Moreover, the portion of the opinion in *Bluefield Water Works & Improvement Co.* v. *Public Service Commission*, 262 U. S. 679 dealing with the question of the rate of return is omitted, although a portion of the opinion is included in the section "The Basis of Utility Return."

The volume has a feature which should prove to be extremely helpful—i. e., a pocket flap for cumulative supplements intended to keep the case book up to date by inclusion of periodical supplements in which the leading cases bearing upon the problems discussed in the case book proper and decided subsequent to its publication will be reported.

Although, with the exception of the inclusion of a number of commission decisions, the opinions and their arrangements are fairly orthodox, the innumerable notes and annotations to this volume make it a valuable case book, both from the point of view of instructor and student, and a desirable addition to the library of any practitioner in the field of public utility regulatory law.

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